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ABSTRACT

The New Approach Method (NAM) is an innovative reading program relying heavily on a phonics approach. The mode of presentation is a cassette tape recorder, which the child is taught to operate at the beginning of the program. The NAM lessons were administered to children at four NAM mini centers; a group of parents administered the NAM lessons to their own children at home; and NAM lessons were given to a group of four-year-olds at a day-care center. All of this took place in inner city Trenton, New Jersey. Data on the effectiveness of NAM were collected for each of the three conditions. For each condition, both cognitive and attitudinal data were gathered. In addition, the reactions of parents whose children participated in one of the conditions were obtained. In general, the results from condition to condition had many similarities. The cognitive areas in which the largest gains occurred were those emphasized in the NAM lessons. No attitude changes were discernable. Questionnaire responses indicated that parents were intimately involved in the NAM process and were satisfied with the results. Parents perceived the primary benefit to be in the area of beginning reading, although a number of other benefits were also mentioned. (RC)

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An Evaluation of the New Approach Method -- Final Report

Donald E. Powers

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November, 1973

EDUCATIONAL TESTING SERVICE
PRINCETON, NEW JERSEY

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INTRODUCTION

Purpose

The purpose of this report is to attempt to document various aspects of an innovative educational method and to describe some of the effects of that method as it was implemented under several treatment conditions. Since a totally comprehensive and conclusive evaluation was not possible within the existing social and financial constraints, an attempt was made to focus efforts on the areas that were judged to be most important and for which information could be most efficiently gathered. For example, techniques such as formal, structured observation, extensive interviews, etc. could not be realistically accomplished. A variety of other descriptive and inferential data, however, has been collected and analyzed with the goal of describing both the program and some of its effects.

History and Background of the New Approach Method

One of the many interesting aspects of the New Approach Method (NAM) program is its unique history and beginnings. At the start of the school year in 1968, the parents of a first-grade child were, during a visit to their son's first-grade classroom, confidentially advised by one their son's fellow first-graders that their son was in the Bluebirds and that this, of course, meant that he was dumb. Being concerned parents, they began to explore ways that they might help their child learn to read. Their first strategy was to obtain the pre-primer that their son's teacher was using and to tutor him during the evenings. This method, however, proved to be not only ineffective in producing the desire results but counter-productive since it seemed to frustrate both the parents and the child.

At Christmas time that year one of their other children received a small tape recorder. The fascination that the children showed towards the toy prompted the parents to use the recorder as a means of teaching their son to read. This event marked the beginning of the development of the present series of NAM lessons -- some 80 tape-recorded pre-reading and reading lessons. These lessons are described in more detail later in this report.

In July, 1969, the NAM originators received a Head Start grant to devise a plan to demonstrate the feasibility of the New Approach Method. During this first phase of the NAM program, materials were developed and tested on about 10 four - to six-year-old children and their parents. Anecdotal accounts* of this first tryout indicate that parents were enthusiastic about the method.

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*Buchheimer, Naomi. "Report on the New Approach Method," June 22, 1970.

An additional grant of $125,000 from Head Start in December, 1969, permitted NAM staff to proceed into the second phase of operations. The purpose of this second phase was to demonstrate the effectiveness of the method under a variety of circumstances. The initial stage of Phase II was concerned with the evaluation, revision, and refinement of the NAM materials, while the latter stage involved tryout of the materials in a variety of situations. These situations involved a total of about 40-50 pre-school children in Trenton, New Jersey public schools. The children participating included both "bright" and "slow" children.

In addition to the school learning situations, about 40 Trenton parents were recruited to work with their own children. Other sites where NAM tryouts proceeded were: Washington, D. C. where about 26 children received the lessons at a community school; Bergen County, New Jersey, where the program was administered to a half dozen Head Start children; and Bristol, Pennsylvania, where about 24 parents served as learning partners to their own children. For a number of reasons, including shortage of funds and lack of continued parent involvement, several of the activities mentioned above were terminated before completion.

Phases I and II included the revision and refinement of NAM lessons and the tryout of these lessons on a fairly wide-range age group in a number of situations. Phase III, the effort with which the present evaluation was concerned, was designed to demonstrate the effectiveness of the method with preschool children located primarily in Trenton , New Jersey's inner-city poverty areas. The present demonstration included children receiving lessons from their own parents and others who received lessons from paid learning partners at neighborhood centers located in church basements or day-care centers. A more detailed description of this effort appears below.

The Evaluation

Preparing for The Evaluation

Time available to prepare for the evaluation was minimal, since program activities and evaluation activities began almost simultaneously. In little more than a month's time, instruments had to be developed or selected and adapted, tried out, and revised. A staff of local residents had to be located and trained to conduct data collection activities, which included administering the battery of instruments. At the same time, evaluation staff were attempting to learn more about the goals and objectives of the NAM program and the strategies and tactics to be employed in accomplishing them. Needless to say, this start-up period was, at best, hectic.

The Design

The original evaluation proposal called for the location of a sizable number of young children whose parents would be willing to enroll them in the NAM program. If a large enough group could be recruited by NAM personnel, as had originally been expected, some could be randomly "withheld" from first phase activities and assigned to the second six-month phase. Testing these second-phase children at the appropriate times would have allowed certain fairly powerful comparisons to be made.

The plan mentioned above proved to be infeasible for a number of reasons, some of them very practical ones. Since the salaries of NAM learning partners depended on the number of children whom they were able to recruit and begin instructing, it seemed unfair to require them to withhold children from the program, even in the interest of evaluation.

Present hindsight also indicates that, had the original plan been implemented, many of the children assigned to the second phase would probably have been unavailable at the start of that phase. As it was, a considerable number of children who were initially enrolled failed to complete the program. Much of this turnover was attributed to the unanticipated transfer of NAM children to Head Start, kindergarten, and other programs that typically begin in the fall.

It was necessary for the evaluation design to consider each of three conditions under which the NAM lessons were being administered. First of all, the NAM lessons were administered to children at four NAM mini-centers mentioned above. These centers were set up and administered solely by NAM personnel. Discussion of the activities of these centers appears later in this report.

Secondly, a group of parents who were willing to administer the NAM lessons to their own children at home were contacted. The activities of these parents were supported by NAM staff.

Thirdly, the NAM lessons were given to a group of randomly cho[illegible] four-year-olds at a local day-care center (Our Lady of the Divine She[illegible] Community Center). Under this condition children were removed from the regular activities of this center for a short time each day to receive an NAM lesson, which was administered by NAM personnel assigned to the center. Another group of four-year-olds at this facility were randomly chosen and assigned to a control condition.

Throughout the remainder of this report the three conditions mentioned above will be referred to, respectively, as the mini-center condition, the at-home condition, and the day-care condition. For each of the three conditions pre- and posttest measures were obtained when children began and completed the series of NAM lessons.

Thus, for the first two conditions mentioned above a one-group pre-posttest design was in effect, while for the third condition a pre- posttest control group design was utilized.

At least some data (pretest, posttest, or both) were collected on over 300 children for the three conditions mentioned above. Table 1 shows the distribution by condition and by sex for the total sample. As can be seen, the majority of children attended mini-centers. There were almost equal numbers of boys and girls.

Table 1

Sex and Location of NAM Children

Location	Male	Female	Total
Mini-centers	83	85	168
At-home	19	34	53
Day-care exp.	26	17	43
Day-care control	21	21	42
Total	149	157	306

The third condition mentioned above is, from an experimental point of view, the most desirable of three conditions, since the design employed under this condition controls most of the threats to the internal validity of the experiment. In each of the other two conditions, however, several sources of invalidity are apparent. These sources are discussed later in this report.

Problems Encountered

In conducting the evaluation, evaluation staff experienced many of the same difficulties that NAM learning partners and helpers encountered when working with parents. The working and social schedules of parents often made contacting them extremely difficult. This problem was magnified by the large number of unlisted telephones found in the Trenton area. When it was possible to contact parents and arrange testing or interview appointments, parents sometimes failed to keep these appointments. In trying to visit those parents who could not be reached by telephone, field staff sometimes found that parents had moved or that they had been given incorrect addresses. One can imagine the frustration experienced by one staff member who discovered that several of the addresses given her did not even exist. Needless to say, the circumstances mentioned above, along with others, hampered data collection activities in the at-home condition.

Data collection activities were also difficult for the mini-center condition. One of the major problems stemmed from the type of program being evaluated. Since NAM allows each child to proceed at his own pace and since new children were being recruited continually as others either completed the program or else dropped out, there was need for a staff of testers who had to maintain an almost on-call availability in order to test children as soon as they were recruited and again when they completed the NAM program. The uneven flow of children in and out of the program necessitated having several testers at peak periods. At other times there was little work to keep even one tester occupied for long. In the final analysis only the extreme fidelity of evaluation field staff enabled data to be gathered in light of the uncertainty of job security.

Another condition that made evaluation difficult was the revision of the NAM lessons. Evaluation instruments were designed to reflect the content of the NAM lessons as they appeared at the start of program activities. Since lessons were revised during the operation of the program, the correspondence between content or objectives and evaluation instruments may have decreased slightly.

The Instruments

Initial Considerations

In the present evaluation of NAM, the attempt was made to assemble a battery of instruments which was felt to be a fair, although by no means a comprehensive, measure of NAM objectives.

Several problems became immediately apparent upon consideration of various tests and measures for use in the evaluation. Some of the considerations which affected decisions included the following:

1) there was little time for extensive development and tryout of instruments specifically designed to measure the objectives of the NAM program;

2) testing time had to be relatively short, both because of the ages of the children and because of financial constraints;

3) tests had to be easily administered by local residents when given suitable training; and

4) above all, the instruments had to be appropriate for young inner-city children in a multi-age range (3 years 8 months to 6 years).

Description of the Measures Used

Several instruments, each individually administered, were used to assess the effectiveness of the NAM program. One test, which was designated as the "NAM Test," contained items chosen from the tests used in the evaluation of Sesame Street and also items that were specifically constructed to measure NAM objectives. This test was administered to children on a pretest-posttest basis.

This NAM test contained six sections which were composed of items dealing with:

1. Colors
2. Concepts
3. Shapes
4. Numbers
5. Letters
6. Word Reading

The Color subtest required a child to identify basic colors when presented with the appropriate stimuli. The Concepts section required a child to demonstrate his understanding of certain relational concepts by pointing to the one picture in a set which correctly depicted that concept. ("There's a bear here, here, here, and here. Which bear is the smallest bear?")

The section on Shapes contained several items which required the child to name particular shapes when they were presented. ("What is this called?" or "What's the name of this?") Other items in this section required the child to recognize these shapes. ("Look at this, this, and this. Which one is a circle?")

The section on Numbers contained both recognition and identification items, as well as items measuring knowledge of number-numeral correspondence and counting.

The Letters subtest also contained both recognition and identification items, as did the section on Word Reading.

Another measure which was administered on a pretest-posttest basis was one consisting of twenty items, ten each from the "Letters and Sounds" and the "Aural Comprehension" sections of the Stanford Early School Achievement Test (SESAT). Items contained in the "Letters and Sounds" section instructed the child as follows: "Look at the box that starts with a picture of a candle. The other pictures are car, boat, lid. Point to the one that starts with the same sound as candle--car, boat, or lid."

Items contained in the "Aural Comprehension" subtest required the child to demonstrate his understanding of an orally presented story by pointing to an appropriate picture after the story was read to him.

Sampling items from sections of the SESAT was considered to be both desirable and feasible for several reasons. This sampling plan resulted in (1) less testing time than would have been needed to administer the complete test, and (2) the elimination of some of the relatively more difficult items. The elimination of these items was considered desirable, since the SESAT was normed on children who, on the average, were slightly older than the children in the NAM program. An advantage of the test is that individual item statistics are provided in the test's technical manual. Thus, comparisons using normative data could be made even though total scores were not obtained.

An attitude measure was also devised and administered on a pretest-posttest basis. This measure, called "Attitudes Toward Reading-Related Activities," was intended to assess and to detect changes in children's attitude towards reading and reading-related activities. The first of three subtests, which was prerequisite to the successful use of the other attitude subtests, was designed to determine if the child understood the difference betwen "happy" and "sad." This determination was made by requiring the child to point to a picture which indicated his feelings when certain things happen to him. ("Here's Jimmy dropping his ice cream cone. Are you happy or sad when you drop your ice cream cone?")

The second subtest required the child to point to the picture that indicated how he felt about various reading-related activites. ("Here's Jimmy looking at a story book. Are you happy or sad when you look at story book?")

The third section of the attitude test required children to express a preference for one of two paired activities, one being a reading-related activity. ("Here's a boy listening to a story. Here's a boy singing a song. Which would you like to do, or which do you like best?")

An additional cognitive measure was given only upon completion of the program. That test contained items measuring knowledge of beginning sounds ("Look at the b̲ear in the next arrow--b̲ear. Point to the letter that b̲ear begins with."), as well as items testing recognition of several words and word families frequently presented in the NAM lessons. Finally the child was asked to write his name for the examiner.

The descriptions provided above of the instruments used in the NAM evaluation are, admittedly, brief but it is hoped they give the reader some flavor for the kinds of test measures that were used.

A parent questionnaire was also devised and administered to the parents of children completing the program. Questions contained on this questionnaire were designed to obtain information in a variety of areas including socioeconomic status, extent of parental involvement in the program, parental reaction to the program, and experiences of the children participating in the program.

Further information about the operation of the NAM program was obtained by direct observation and by questioning the personnel involved in program operations.

DESCRIPTION OF THE PROGRAM

General Structure

In the summer months of 1971, four NAM "mini-centers" were established in the inner-city Trenton area. Three of the centers were established in church basements (or in facilities owned by these churches); the other center was located in the Black Cultural Center. Each of the centers had a slightly different physical arrangement, although at each there was a fairly large room in which a learning helper conducted group activities. The centers also had various numbers of adjoining rooms which were used to administer NAM lessons to individual children. Some of the centers were more adequately equipped than others in this regard. At two of the centers there seemed to be little problem in finding a quiet space to administer lessons, while at the other two centers this problem did exist to some extent.

The general administrative structure at each center can be described as follows. Each center's activities were supervised by a a base learning helper, who provided both supervisory and supportive services to those learning partners and field learning helpers assigned to her center. These services included consulting with staff about problems they may have experienced, making sure supplies were available to learning partners, and conducting group activities for the children attending her center.

Learning partners were responsible for taping and administering the NAM lessons to the children whom they had recruited. In addition, learning partners were in charge of checking the worksheets which accompanied the lessons, as well as keeping parents informed about their children's progress.

Field learning helpers were in charge of recruiting parent volunteers to work at home with their own children and providing support services to these parents. Each field learning helper also worked with about two children at the mini-centers in order to gain personal experience in administering the NAM lessons.

Although both child enrollment and number of staff employed fluctuated considerably during the period of Phase III activity, it may be useful to present some statistics on these variables. Figures reported in the first NAM quarterly report indicate that in mid-October there were between 20 and 30 children in regular attendance at each of the four mini-centers. Each of the centers was staffed by a base learning helper, from two to five learning partners, and up to three field learning helpers.

As was stated above, the number of children and staff at mini-centers varied greatly during the course of Phase III. The figures presented above, however, should give the reader some notion of the level of effort of typical NAM operations. The period mentioned is thought to be typical because the initial group of NAM recruits was well into the lessons (some were working on lessons in the 30's) and because the NAM enrollment had become relatively stable after the attrition suffered in early September when schools opened.

NAM children attended either a morning session or an afternoon one, each of which was two-and-one-half hours long. Suggested activities were outlined in a daily lesson plan which specified 15-minute time intervals to be devoted to talking time, practical life exercises (Montessori activities), individual work, free play, physical exercise, arts and crafts, music, snack time, and sensory stimulation activities. From these group activities, children were taken aside individually and given NAM lessons.

Unstructured observation of activities at each of the mini-centers revealed some deviation from the daily lesson plan mentioned above. In addition to this flexibility, there was variation among centers with regard to the particular activities conducted by learning helpers. A total of six observations were conducted by ETS staff between November 1, 1971 and February 28, 1972. Each of these observations lasted for a full 2 1/2-hour morning or afternoon session and revealed that learning helpers were quite flexible in their approaches. The impressions gathered during these observation visits are included in Appendix A.

Further descriptive information on NAM mini-center activities was derived from a brief questionnaire administered to NAM center learning helpers. Table 2 contains learning helper reports of the amount of time children were engaged in various activities on a "typical" day. The reports, which were returned from only two of the four mini-centers, indicate that these two centers were fairly comparable with respect to the amounts of time spent on various activities. Additional information regarding the games, materials, equipment, and activities at NAM mini-centers is presented in Appendix B, which contains the descriptions provided by center learning helpers.

Table 2

Learning Helper Reports of Daily Activities

On a typical day (half-day session) about how much time does the average child at your center spend at each of the following activities?

Activity	Number of Minutes	
	Center 1	Center 2
Free play	20	20
Activities involving numbers and number concepts	20	20
Arts and crafts activities	30	30
Music, rhythms, dance	10	20
Perceptual training and practice (colors, shapes, etc.)	20	25
Physical exercise, activities to develop motor coordination	15	15
Rest or snacks	15	30
Listening to stories	10	--
Pre-reading and reading activities (letter and word recognition, letter sounds, etc.)	20	30
Other (Children talking to each other and to NAM staff)	20	--

Content Analysis of NAM Lessons

Although each of the NAM mini-centers sponsored activities in conjunction with the series of tape-recorded lessons, the lessons themselves were the central aspect of the program. Examination of the actual lessons would probably be the best method for a potential user to determine their content and usefulness for his particular purpose. (A typical lesson has been included here as Appendix C). We have deemed it desirable, however, for the purposes of the present evaluation to summarize the content of the NAM lessons. It is hoped that this summarization will be useful in giving the interested reader some idea about the relative emphasis placed on each of the skills, objectives, or content areas found in the NAM lessons. In addition, this summarization may prove to be useful in relating program effects to the amount of emphasis placed on various objectives.

To accomplish these ends the lessons have been analyzed in a rather simplistic manner. Basically, the approach used here has been to determine the frequency with which various skills or contents appear in the lessons. Although there are several systems under which the content of the NAM lessons could have been classified, the one chosen here is intended to correspond to the sections contained in the tests used in the evaluation.

The NAM lessons rely very heavily on a phonics approach to reading. The mode of presentation is a cassette tape recorder, which the child is taught to operate at the start of the program. Sounds are introduced almost exclusively as they appear as initial letters. In addition, many words are introduced on a sight basis or on a combination sight and phonics approach. The present analysis will not attempt to classify the method of presentation, but only to determine the frequency of exposure of various colors, concepts, numbers, sounds, letters, and words.

Since the teaching of a particular concept, etc. , may have been either the main objective of a lesson or an incidental one, the degree of emphasis placed on each of the concepts, etc., was also noted. For example, if it was stated in the introduction to the lesson that a concept was a primary focus of that lesson or if that concept was judged to have been emphasized at least as much as a concept stated to be of primary emphasis, then that concept or content was classified as being a primary emphasis of the lesson. Other concepts or areas which appeared in subsequent lessons, but only in connection with the introduction or review of another concept, were classified under secondary emphasis. Appendix D presents frequency counts for the concepts or areas that were most often observed.

NAM as a Supplement at an Independent Day-Care Center

From an experimental point of view, the most powerful condition existed at the day-care center operated at Our Lady of the Divine Shepherd Community Center (OLDSCC). This center was located in the heart of Trenton's inner-city area and was within a short walk of all but one of the four NAM mini-centers. Thus, the children attending the OLDSCC day-care center were presumed to have come from the same population (or at least from the same general vicinity) as the children at three of the NAM mini-centers. There were, of course, differences between the NAM mini-centers and the OLDSCC day-care center which may have resulted in different types of children attending each of the facilities. Specifically, different philosophies, different program lengths (the NAM program is half a day whereas the OLDSCC program ran from 7:00 A.M. to about 5:00 P.M.), and different costs (OLDSCC care cost $7.00 per week whereas the NAM program was free) may have resulted in slightly different client populations at each of the centers.

In September, 1971, more than 90 four-year olds at OLDSCC were identified. Since the facilities at the center could accommodate only about four or five NAM learning partners, forty of these children were randomly assigned to a group scheduled to receive the NAM lessons. The remaining 50 children were designated as a control group. Eighty-five of these children were pretested in September and October, 1971, and 54 remained and were present to be posttested.

Records revealed that the random assignment of children to either the NAM condition or the control condition was maintained satisfactorily, though not perfectly, since three of the children assigned to the control group did in fact receive the NAM lessons. The scores of these children were treated as if they had originally been assigned to the NAM condition. Also, two of the children assigned to the control group received NAM lessons from their parents. The scores of these children were excluded from the analysis. The net result was that pre - and posttest scores were available for 27 NAM children and 25 control children.

Although the random assignment of children to experimental or control conditions is a powerful tool for making inferences, there is, unfortunately, a flaw in the present design that should be mentioned. Administratively, it was necessary to assemble all of the children assigned to NAM under one roof and all of those assigned to the control group under another. This condition, obviously, resulted in each of the groups being managed by a different "teacher." While a single individual cannot impart a great deal of instruction to nearly 40 children, there is, nonetheless, the possibility that teachers may have had differing amounts of influence on the achievement of the children involved. Since it was not possible to monitor and to document the activities in these classrooms, it is not known how different the influence of the teachers may have been. It appeared, however, that the four-year-olds at OLDSCC did not receive a great deal of formal instruction.

Another imperfection in the design, as it relates to children at OLDSCC, was the scheduling of testing. It was assumed that the NAM program would begin shortly after the children were pretested. Delays in making final arrangements for program operations at OLDSCC, however, resulted in a time lag of about two months between pretesting and the start of program operations. Thus, differences between pretest and posttest scores reflected not only the effects of the program but also the events occurring during the period between pretesting and program start-up. Furthermore, twelve of the children whose scores have been used in the analysis were unable to finish the complete series of NAM lessons before the program was discontinued at OLDSCC. The inclusion of the scores of these children in the analysis of results may have resulted in underestimating the treatment effects of a fully implemented program.

Selection and Training of NAM Staff

Several training sessions were held just prior to, and also during, the first months of NAM operations. The primary purposes of these sessions were to select and to train learning helpers and learning partners to implement the NAM program. In all, about five of these sessions were conducted in the summer and fall months of 1971 as NAM was getting under way. The length and format of the sessions, and the backgrounds of the participants varied somewhat from session to session, but most sessions had many common aspects.

Several techniques were used to recruit staff to administer the NAM program. NAM personnel who had previously worked in the NAM program were responsible for spreading the word that new staff were needed for the new effort. Several community agencies were also made aware of the fact that a number of positions were available. These techniques proved to be quite effective in locating a substantial number* of persons interested in becoming learning helpers or learning partners.

The first stage of the selection process included interviews conducted by NAM staff. This procedure served as a preliminary screening device. The interviewers, in general, took a "no-nonsense" approach, which is typical of the NAM program, stressing that the job of a learning partner would not be easy and that it would entail long hours and late staff meetings. Applicants were asked about their previous experiences with children and about their current "inspirations and aspirations." Finally, they were asked to record a portion of a typical NAM lesson and to suggest solutions to various problems that might be encountered in working with parents or children.

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* The director indicated that over 100 persons applied for NAM positions as a result of initial recruiting attempts. Of those twenty-two who were selected for training, fourteen completed the program.

The objectives of the training sessions themselves were to acquaint prospective learning partners and helpers with the history, the materials, the procedures, and the administrative policies of the NAM program. In addition, trainees were given some background on the goals and problems associated with early childhood education. Success in the training program was the final criterion by which NAM personnel were chosen. The possession of formal academic credentials was not a factor in selection.

Each day of a training session, which usually lasted about a week, began early and continued until late in the afternoon. Each session included an introduction to the NAM program. This introduction was in the form of a videotape presentation (and accompanying narration) in which the director's son is shown "before" and "after" NAM. The first sequence shows the boy painfully plodding through a beginning reading book; the next shows the boy enthusiastically involved with a tape-recorded NAM lesson.

The theme, "Parents are Teachers, Too," was emphasized in a film which "starred" several of the families involved in earlier NAM tryouts. The film, which was both entertaining and informative, dealt with several supplemental learning games and activities in which parents and their children might take part in connection with the NAM lessons. Various segments of the film depicted parents and children playing these games while engaged in other everyday activities such as riding in a car, shopping, or preparing meals. The theme of the film was that even these simple tasks can be turned into pleasant learning experiences, instead of something that neither parent nor child enjoys. The film seemed to be quite effective in demonstrating that the time parents spend with their children can be easily filled with enjoyable games and learning experiences which will not only teach something but will also strengthen family relationships.

The philosophy of the NAM program* -- that "no child can be considered free until he reads and writes his own and the thoughts of others with enjoyment and independence," that the child "should experience new qualities of loving and being loved," that he should "be encouraged on every side to inquire, investigate, probe, and challenge the mysteries of life," and that he should "be helped to exercise his analytic, deductive, and inductive thought processes as well as his creative powers..." -- was also discussed during each of the training sessions.

Various topics in child development theory and philosophy (e.g., "What Should Education Mean for Kids?" and "How do Young Children Learn Best?") were presented by a variety of people including an Office of Child Development monitor, a Trenton school psychologist, members of AFRAM Associates, and experienced NAM staff. A final educational activity was a field trip to the Institute for the Achievement of Human Potential in order to explore the usefulness to the NAM program of the techniques that the Institute uses in working with children exhibiting learning disabilities.

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* The NAM philosophy is set forth in a brief document entitled "A Statement of NAM Philosophy." Excerpts appearing here are from that document.

Additional training activities included discussions of NAM personnel and administrative policies, discussions of NAM instructional and child recruitment procedures, and opportunities to talk about any problems that had already arisen or that might arise. Role-playing to simulate problems that might be encountered in recruiting or teaching children was used frequently during the training sessions.

Parents who wished to serve as learning partners to their own children were also introducted to the NAM program in much the same way as learning partners trained to work in the NAM mini-centers. A typical parent session was the one held in two four-hour meetings in the community meeting room of a local newspaper. There parents proceeded through a session similar to, but shorter than, those completed by center learning partners. Many of the same activities were condensed for the shorter parent session.

Similar training sessions were also conducted for learning partners stationed at the independent day-care center.

Recruitment of Children

Children were recruited for the NAM program in a variety of ways. The primary responsibility for recruitment rested with individual learning partners and learning helpers. Since the salaries of learning partners depended on the number of children to whom they administered lessons, there was an incentive to actively recruit children.

Learning partners and learning helpers were encouraged to locate children using whatever means seemed effective. Relatives, friends, and neighbors with children were singled out as likely initial targets. The only restriction to be observed was that children should be between 3 years 8 months and 6 years old.

In addition to the recruitment efforts of NAM staff, knowledge of the NAM program was spread by word of mouth and by coverage provided by various media. The latter included articles appearing in two local newspapers, feature articles published in a local black-oriented magazine, and local radio and television coverage. Somewhat wider promotion of the program was achieved by the director's appearance on two television "talk shows" originating in Philadelphia. Needless to say, the NAM program received a considerable amount of publicity to which there was also considerable response.

In order to determine the effectiveness of the different recruitment or publicity efforts, the NAM parent questionnaire contained a question about the source of parents' first information about the NAM program. The results of that question for NAM graduates appear in Table 3.

Table 3

Source of Parental Information About the NAM Program

Source	N	%
Heard about it from a friend or relative who had been involved with NAM	22	42.3
Read about it in the newspaper	5	9.6
Heard about it on radio or TV	0	0.0
Heard about it from someone working in the NAM program	19	36.5
Other:		
At Church	5	9.6
Other	1	1.9
Total	52	99.9

It is apparent from Table 3 that friends or relatives associated with the NAM program (who could also have been learning partners) and NAM staff were the agents primarily responsible for the parents of NAM graduates' learning about and subsequently enrolling their children in the program.

Parental Involvement in Program Operations

From its inception the NAM program attempted to involve parents in the learning process by encouraging parents either to administer the NAM lessons to their own children or to assist their children with the supplementary materials that were sent home from the NAM mini-centers that their children attended or the independent day-care center.

Several questions contained on the parent questionnaire were intended to assess the degree of parental involvement in the NAM process. Responses to three related questions (Table 4) indicate that, in general, the learning process did not stop when the child returned home from the center he attended each day. For example, a majority of parent responses (77%) indicated that a parent or some other member of the household assisted the child with the supplementary materials at least three times a week. Forty percent of parent responses suggested almost daily assistance (five or more times a week). Likewise, discussion between parents and children about the NAM lessons or games was almost equally as frequent. A detailed presentation of responses appears in Table 4.

The fact that a child's participation in the NAM program continued when he returned home each day from the NAM center is also suggested by parent responses concerning the amount of time children spent working on NAM materials at home. Most parents (65%) revealed that their children spent at least three hours a week working at the supplementary materials sent home by learning partners. These data also appear in Table 4 .

Table 4

Parent and Child Participation in NAM at Home

How often did you (or some other member of the household) help your child with the supplementary materials or "homework" that was sent by his NAM learning partner?	N	%
Never or hardly ever	0	0
Less than once a week	4	7.7
About 1-2 times a week	7	13.5
About 3-4 times a week	19	36.5
About 5 or more times a week	21	40.4
No response	1	1.9
Total	52	100.0

How often did you (or some other member of the household) talk to your child about the NAM lessons or play the games suggested in the supplementary materials?	N	%
Never or hardly ever	2	3.8
Less than once a week	2	3.8
About 1-2 times a week	11	21.2
About 3-4 times a week	19	36.5
About 5 or more times a week	17	32.7
No response	1	1.9
Total	52	99.9

Table 4 (continued)

Parent and Child Participation in NAM at Home

About how much time did your child usually spend working on the materials that were sent home by his NAM learning partner?

	N	%
None	1	1.9
Less than 1 hour a week	8	15.4
About 1-2 hours a week	9	17.3
About 3-4 hours a week	17	32.7
About 5 or more hours a week	16	30.8
No response	1	1.9
Total	52	100.0

RESULTS

Description of the Sample

Ages of Children and Length of Time in the Program

As stated earlier in this report, it was the intention of NAM personnel to offer the program to youngsters between the ages of 3 years 8 months and 6 years. Table 5 presents the distribution of ages at the time children were pretested. The distribution shown includes the ages of all children pretested in NAM mini-centers or at home for whom dates of birth were available. Table 5 indicates that, in general, NAM staff were successful in recruiting children in the targeted age range, although some children (about 22%) did fall outside this range. The median age at pretest was slightly over 4 years 8 months.

Since NAM learning partners were encouraged to allow children to proceed at a pace comfortable to the children and since new children were constantly being recruited, testing was being conducted almost continuously. NAM learning partners were responsible for keeping evaluation staff informed about new children entering the program and about children completing the program. Testers were dispatched to mini-centers, family homes, or the in-independent day-care center to test children when information from NAM personnel indicated this action. In general, testers were able to test most children shortly after they started the program and again almost immediately after learning partners indicated they had finished the program. Therefore, the ages of children at pretest and at posttest reflect quite accurately the ages when the children began and when they finished the NAM program. Likewise, the length of time between pretesting and posttesting reflects the length of time required for children to complete the program.

Table 5

Ages of NAM Children (at Home or in Mini-centers) at Pretest

Age (in months)	N	%
less than 36	3	1.7
36 - 40	7	3.9
41 - 45	22	12.4
46 - 50	29	16.3
51 - 55	21	11.8
56 - 60	31	17.5
61 - 65	28	15.8
66 - 70	16	9.0
71 - 75	11	6.2
greater than 75	9	5.0
Total	177	99.6
Median	56.5	

Table 6, which presents the distribution of length of time between pretesting and posttesting, supports the notion that children were allowed to set their own pace. On the average, children required about 8 or 9 months to complete the series of NAM lessons. A few children, however, were able to finish in less than five months, while others required more than a year's time. Thus, to complete the series of lessons children generally required more time than the originally anticipated six-month period. Table 7 shows the ages of the children who were able to finish the program. Again, a fairly wide range of ages is noted.

For the children at Our Lady of the Divine Shepherd Community Center precise information on the ages of the children was not available. Staff at the facility, however, indicated that all of the children were four years old at the time they were pretested. All pretesting at this facility was accomplished in late October and early November of 1971. Children were posttested as they completed the series of lessons.* The last posttests to be administered were those given to those children who had yet to finish the lessons when the program was terminated at the OLDSCC facility. All testing at this facility was completed by the second week in December, 1972.

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* In order that the time between pre-and posttesting be the same for both the control group and the experimental group, a control group child was tested each time a child in the experimental group was tested.

Table 6

Length of Time (for Children at Home or in Mini-centers)
Between Pretest and Posttest

Interval (in months)	N	%
less than 5	3	4.3
5	4	5.7
6	3	4.3
7	12	17.2
8	16	22.9
9	7	10.0
10	9	12.9
11	3	4.3
12	4	5.7
More than 12	9	12.9
Total	70	100.2
Median	8.4	

Table 7

Ages of NAM Children (at Home or in Mini-centers) at Posttest

Age (in months)	N	%
less than 36	0	0
36 - 40	0	0
41 - 45	1	1.4
46 - 50	2	2.9
51 - 55	8	11.4
56 - 60	11	15.7
61 - 65	16	22.9
66 - 70	13	18.6
71 - 75	12	17.2
greater than 75	7	10.0
Total	70	100.1
Median	65.0	

Socioeconomic Variables

Several questions relating to socioeconomic status were asked of the parents of NAM enrollees. Specifically, these questions pertained to educational background, occupational status, and affluence.

Table 8 presents the frequencies with which the parents of NAM graduates attained various educational levels. Although there are slight differences in the percentages of males and females attaining each educational level, there seems to be no pronounced trend for either males or females to have been better educated. The most noticable difference was that, for males, information was not available in a greater percentage of cases.

Table 8

Educational Level of NAM Parents

Last Grade Completed	Female		Male	
	N	%	N	%
8th Grade or less	5	9.6	4	7.7
Some High School	15	28.8	13	25.0
All of High School	22	42.3	16	30.8
Some College	5	9.6	7	13.5
Four Years of College or beyond	2	3.8	2	3.8
No Information	3	5.8	10	19.2
Total	52	99.9	52	100.0

Some idea of the level of affluence of NAM parents can be obtained from responses to questions dealing with type of dwelling and possession of certain common articles. Responses to these questions appear in Tables 9 and 10, respectively. Table 9 shows that it was most common for families to live in either a one-family house or else a duplex or row house.

It is interesting to note that Table 10, which indicates the percentage of families owning various items, shows that relatively high proportions of NAM households had dictionaries (85%) and/or encyclopedias (56%). These statistics would seem to suggest that the sample of parents considered here may be relatively education-oriented.

Information was also obtained on another commonly used indicator of socio-economic status -- occupation. The scheme that was used to classify occupations is one based on the system used by the U. S. Bureau of Census. The data presented in Table 11 reveal that nearly half of the mothers in the sample were not employed, with many listing their occupation as "housewife." The majority of the mothers who worked were engaged in either clerical or some type of service work. For the male heads of household, no information was available on about one-third of the sample. Those fathers for whom occupational information was available were most often placed in category 7 -- operatives. Two other "blue-collar" categories -- service workers and craftsmen -- were mentioned next most frequently.

Table 9

Type of Dwelling

Type	N	%
Single house, one family	21	40.4
Duplex or row house, one unit for each family	17	32.7
Converted single house, converted row house, multi-family	5	9.6
Apartment, garden type	1	1.9
Apartment, multi-story	2	3.8
Apartment, housing project	3	5.8
Trailer	0	0
No information	3	5.8
Total	52	100.0

Table 10

Possession of Some Common Articles by NAM Families

Article	N	%
Automobile	37	71.2
Black and white TV	44	84.6
Color TV	22	42.3
Dictionary	44	84.6
Encyclopedia	29	55.8
Telephone	45	86.5
Clothes washer	41	78.8
Clothes dryer	17	32.7

Table 11

Occupations of NAM Parents

Occupation	Mother		Father	
	N	%	N	%
Professional	1	1.9	2	3.8
Farm Owners and Managers	0	0	0	0
Managers and Proprietors	1	1.9	1	1.9
Clerical	10	19.2	1	1.9
Sales Workers	0	0	1	1.9
Craftsmen, Foreman	0	0	4	7.7
Operatives	1	1.9	13	25.0
Services	9	17.3	9	17.3
Farm Laborers	0	0	0	0
Laborers, except farm	0	0	2	3.8
Not employed	25	48.1	2	3.8
No information	5	9.6	17	32.7
Total	52	99.9	52	99.8

Test Results

Mini-center Results

The number of children completing the NAM program at NAM mini-centers was relatively small when compared to the number of children initially enrolled at these centers. The results discussed in this section are based on a total of 65 children who completed the program at NAM mini-centers and for whom both pretest and posttest data were available. In view of this rather small sample, no analysis was made by particular center attended.

Test results for children in NAM mini-centers are presented by subtest and by individual item in Tables 12 and 13. Table 12 contains subtest means and standard deviations for pretest, posttest, and gain scores. The significance level of each gain has been computed using a two-tailed t test for correlated observations.

Reliability estimates have been computed for each subtest using every pretest and every posttest score available for all of the treatment conditions. Generally, the subtest reliabilities are adequate for group assessment, although some estimates are fairly low. It should be noted that some of the relatively low reliabilities can be accounted for either by the restricted ranges of the scores observed for some of the subtests or by the small number of items making up these subtests. Reliability estimates* appear in Table 14.

Overall Results

As can be seen from Table 12 statistically significant gains were made on each of the cognitive subtests. There were, however, no significant changes on any of the attitude subtests.

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*The reliability estimate used here is the familiar "coefficient alpha" first discussed by Cronbach: "Coefficient alpha and the interval structure of tests". Psychometrika, 1951, 16, 297-334.

Table 12

Pretest, Posttest, and Gain Scores for Children in NAM Mini-centers

Subtest	Maximum Possible Score	Pretest		Posttest		Gain	
		Mean	SD	Mean	SD	Mean	SD
Colors	4	2.4	1.5	4.0	.1	1.5*	1.5
Concepts	10	7.8	1.5	9.0	1.0	1.2*	1.7
Shapes	7	3.8	2.2	6.2	1.1	2.4*	2.1
Numbers	10	4.7	2.7	9.1	1.2	4.3*	2.5
Counting	30	11.7	8.9	25.5	6.9	13.8*	9.5
Letter Recognition	8	3.7	1.9	7.6	.8	3.9*	1.9
Letter Identification	8	1.7	2.4	7.3	1.3	5.5*	2.4
Reading Recognition	7	1.9	1.1	4.9	1.9	3.0*	2.2
Reading Identification	11	.5	1.2	2.3	3.1	1.7*	3.2
SESAT Letters and Sounds	10	4.4	1.9	5.9	2.7	1.5*	3.1
SESAT Aural Comprehension	10	5.6	2.1	7.0	1.9	1.4*	2.0
Beginning Sounds	7	-	-	4.9	2.0	-	-
Sight Words	3	-	-	1.6	1.2	-	-
Word Families	5	-	-	1.5	1.8	-	-
Total	130	48.2	19.4	89.5	13.9	41.3*	17.6
Attitudes 1	6	4.5	1.4	5.0	1.0	.4	1.3
Attitudes 2	5	4.0	1.5	4.4	1.0	.4	1.6
Attitudes 3	5	2.2	.9	2.2	1.0	.0	1.5

* Significant at the .01 level

Table 13

Percentage of Children in NAM Mini-centers
Answering Each Item Correctly on Pretests and Posttests

Subtest and Item	Pretest	Posttest
COLORS Naming:		
1. Red	68%	100%
2. Blue	51	100
3. Green	66	98
4. Yellow	60	100
CONCEPTS		
5. Which ball is same?	97	100
6. Which pencil is longest?	90	100
7. Which is straight line?	90	98
8. Which is biggest bear?	95	100
9. Which is smallest bear?	87	95
10. Which bird is above cage?	32	43
11. Which dog is in box?	94	100
12. Which trees are all in row?	44	67
13. Which balloon is at bottom?	79	97
14. Which balloon is at top?	71	97
SHAPES What is this called:		
15. Square	48	86
16. Circle	71	98
17. Rectangle	13	71
18. Triangle	40	83
Which one is a:		
19. Circle	86	98
20. Square	67	94
21. Triangle	57	94

Table 13 (continued)

Percentage of Children in NAM Mini-centers
Answering Each Item Correctly on Pretests and Posttests

Subtest and Item	Pretest	Posttest
NUMBERS		
Which is:		
22. 3	67%	100%
23. 8	60	98
What is this:		
24. 6	29	89
25. 9	24	81
26. 2	44	98
27. 10	16	84
Number/Numeral Correspondence:		
28. 2 frogs	70	100
29. 5 turtles	54	98
Numerical relations:		
30. First	76	100
31. Last	32	57
Counting:		
32. To 10 without mistakes	46	98
33. To 20 without mistakes	15	77
34. To 30 without mistakes	11	47
LETTERS		
Which letter is:		
35. A	55	100
36. P	38	97
37. B	55	100
38. E	64	100
39. f	52	100
40. b	39	77

Table 13 (continued)

Percentage of Children in NAM Mini-centers
Answering Each Item Correctly on Pretests and Posttests

Subtest and Item	Pretest	Posttest
LETTERS (continued) Which letter is:		
41. n	31%	95%
42. h	41	95
What is this letter:		
43. S	31	100
44. C	28	92
45. H	22	88
46. W	22	83
47. m	22	95
48. e	22	89
49. t	13	95
50. g	13	84
READING WORDS Which one says:		
51. BIRD	38	77
52. SUN	25	80
53. mop	23	59
54. BOAT	14	61
55. AT	22	75
56. sister	31	81
57. hand	36	56
What does this say:		
58. TO	11	29
59. HAT	8	32
60. STREET	5	8
61. met	3	25

Table 13 (continued)

Percentage of Children in NAM Mini-centers Answering Each Item Correctly on Pretests and Posttests

Subtest and Item	Pretest	Posttest
READING WORDS		
What does this say:		
62. mouse	3%	26%
63. big	5%	17%
What does this sentence say:		
64. THE	5	17
65. LITTLE	5	9
66. BOY	8	31
67. IS	0	28
68. HAPPY	3	9
LETTERS AND SOUNDS (Stanford Early School Achievement Test)		
Sound of:		
69. g	47	69
70. m	49	66
71. c	47	66
72. t	66	64
73. r	27	49
74. p	39	66
75. h	25	53
76. s	44	54
77. d	51	49
78. sh	41	53
AURAL COMPREHENSION (Stanford Early School Achievement Test)		
79. Story 1	53	78
80. Story 2	57	82

Table 13 (continued)

Percentage of Children in NAM Mini-centers
Answering Each Item Correctly on Pretests and Posttests

Subtest and Item	Pretest	Posttest
AURAL COMPREHENSION (Stanford Early School Achievement Test)		
81. Story 3	78%	88%
82. Story 4	68	72
83. Story 5	47	68
84. Story 6	63	60
85. Story 7	32	58
86. Story 8	52	68
87. Story 9	57	80
88. Story 10	48	43
BEGINNING SOUNDS		
Which letter(s) does this word begin with:		
89. Bear		79
90. Sandwich		82
91. Apple		72
92. Pan		74
93. Foot		68
94. Wig		75
95. Thumb		37
SIGHT WORDS		
96. BUS		67
97. CAR		51
98. BIKE		38
WORD FAMILIES		
99. (P)AM		43

Table 13 (continued)

Percentage of Children in NAM Mini-centers
Answering Each Item Correctly on Pretests and Posttests

Subtest and Item	Pretest	Posttest
WORD FAMILIES		
100. (P)AT		36%
101. (P)ET		23
102. (P)AY		14
103. (P)AN		30
ATTITUDES TOWARD READING-RELATED ACTIVITIES		
Happy and Sad (Attitude 1)	% Correct	
1. Which is happy?	77	95
2. Happy or sad	64	95
3. Opening a present	86	91
4. Falling off bike	59	68
5. Dropping lollipop	91	59
6. Eating ice cream	77	86
Attitude towards reading-related activities (Attitude 2)	% Happy	
7. Looking at a picture book	73	77
8. Learning ABC's	86	86
9. Watching television	68	93
10. Listening to tape recorder	86	82
11. Drawing and coloring picture	72	86
12. Looking at story book	77	91
13. Singing a song	84	91
14. Getting book as a present	82	91
15. Getting shirt or dress as present	76	97
16. Listening to story	77	91

Table 13 (continued)

Percentage of Children in NAM Mini-centers
Answering Each Item Correctly on Pretests and Posttests

Subtest and Item	Pretest	Posttest
ATTITUDES TOWARD READING-RELATED ACTIVITIES		
Like to do best (Attitude 3)		
	% Choosing Each Option	
17. Eat ice cream	66	73
Drink water	34	27
18. Look at picture book	32	27
Look at story book	68	73
19. Watch television	23	50
Listen to tape recorder	77	50
20. Listen to tape recorder	68	32
Draw and color picture	32	68
21. Get a new book	41	23
Get a new shirt (dress)	59	77
22. Listen to story	32	36
Watch television	68	64
23. Look at story book	50	64
Watch television	50	36
24. Sing a song	68	77
Listen to story	32	23

Table 14

SUBTEST RELIABILITIES FOR TOTAL SAMPLE

Subtest	Number of Items	Pretest	Posttest
Colors	4	.82	.75
Concepts	10	.64	.39
Shapes	7	.81	.75
Numbers	10	.84	.60
Letter Recognition	8	.69	.62
Letter Identification	8	.89	.84
Reading Recognition	7	.22	.75
Reading Identification	11	.77	.92
Attitude 1	6	.50	.44
Attitude 2	5	.68	.78
Attitude 3	5	-.02	.22
SESAT Letters and Sounds	10	.44	.78
SESAT Aural Comprehension	10	.45	.60
Beginning Sounds	7	-	.80
Sight Words	3	-	.82
Word Families	5	-	.89

Results by Subtest

Colors. The colors subtest was the first test that the child received. It was thought that children would generally be more familiar with basic colors than with some of the other areas that were to be tested later in the testing sequence. This section, then, was used not only to determine if the exercises used in the NAM program had any effect on the child's knowledge of colors, but also to help the child become accustomed to the testing situation, which may very well have been his first such experience.

Pretest scores indicated that children tended to be relatively familiar with the basic colors when they started the program. But the posttest scores of mini-center graduates show that nearly every child was able to name every color on the posttest.

Concepts. Knowledge of ten relational concepts stressed in the first few NAM lessons and reviewed in later lessons was tested in the concepts subtest. Again, previous data indicated that these items should also be relatively easy for children in this age group. This proved to be the case since, on the average, children were able to answer about 8 of the 10 pretest items correctly, indicating that they were, in fact, capable of responding appropriately. Although pretest scores were high, a slight gain occurred from pretest to posttest, pushing scores near the maximum possible score.

Table 13 reveals differences in the relative difficulties of the items. The concept of "above" was the most difficult concept when children were first tested. It also tended to be quite difficult on the posttest, as was the concept of "all in a row." On the whole, by posttest time, children seemed to have virtually mastered all the other concepts tested.

Shapes. Children in mini-centers also improved with regard to their ability to identify (name) and recognize simple shapes (circle, triangle, square and rectangle). Posttest scores again were almost as high as possible. Table 13 shows that children tended to be better able to recognize or name a circle at both pre- and posttest than any of the other shapes. However, at posttest time children had become familiar with all the shapes presented, the rectangle still being the most difficult.

Numbers. The numbers subtest contained items testing both recognition and identification of one- and two-digit numbers. In addition, there were two items dealing with number/numeral correspondence and two others testing knowledge of the concepts "first" and "last," although these latter two items might also have been included in the concepts subtest.

Again gains were quite high for this section. The pretest mean of 4.7 increased to 9.1 (of 10) on the posttest. Table 13 indicates that only the concept of "last" remained very difficult for these children.

Letters. Probably the most dramatic gains from pre- to posttest occurred on the letters subtest, which contained eight items requiring recognition and eight items requiring identification of letters. Mean gains of 3.9 and 5.5 points on these sections again resulted in near-perfect posttest scores for most of the children in the mini-center sample.

Table 13 reveals that, in general, these children found the tasks of identifying or recognizing both upper- and lower-case letters to be quite easy on the posttest. Percentages presented in Table 13 show that naming letters was more difficult on pretest than was recognizing letters, even after adjustment for guessing. On the posttest, however, the children in the sample were able to perform both tasks about equally well. The only item on the posttest which was at all difficult was the one requiring recognition of lower case "b." The fact that this item contained a lower case "d" as one of the distractors may account for the relative difficulty of the item.

Word Reading. The word reading subtest, like several previous subtests, contained both recognition and identification items. Recognition required the child to pick out the appropriate word from a set of four when he was told that word (and in some cases also given a picture of that word). Identification, on the other hand, required the child to actually read certain words.

When children began the NAM program very few were able to read or recognize many of the words presented. In fact, the pretest average of 1.9 on the recognition subtest was about what one would predict on the basis of chance alone. In contrast, on the posttest NAM mini-center graduates averaged about five (out of seven) correct responses on this subtest.

The reading identification subtest, which required the child to attach verbal labels to a variety of words, was extremely difficult for children when the pretest was administered. Few children were able to answer even one item correctly. On the posttest, however, children showed signs of beginning to read. Posttest scores improved on the average by more than two points, but the task of supplying the appropriate label was still quite difficult.

Counting. The children in the sample seemed to be able to count fairly well at the time of pretesting. On the average, the children could count to about 12 at that time, while on the posttest they were able to count nearly 14 digits farther. Table 13 shows that nearly all of the children posttested were able to correctly count to 10 on the posttest and nearly half of them were able to count to 30 without making any mistakes.

Letters and Sounds (Stanford Early School Achievement Test). The sample of mini-center graduates showed moderate gains on the 10 items selected from the Letters and Sounds subtest of the Stanford Early School Achievement Test. The selected items required the child to point to the picture of the object that starts with the same sound as another object (e.g., gate starts with the same sound as rose, gift or witch) after the child was told the name of each object.

Table 13 indicates that nearly all items were less difficult for these children when they had finished the NAM program than when they had just started. As was previously stated, one advantage of the Stanford Early School Achievement Test, at least for the purposes of this evaluation, is that individual item statistics are provided for a large national sample. These norms are given for groups at the beginning of kindergarten and the beginning of first grade.

Table 15 presents the median percentages for the subtest composed of items selected from the Letters and Sounds subtest of the Stanford Early School Achievement Test (SESAT) for both the NAM sample and for the group on which national norms were established. These statistics are presented only to give the reader some idea of the relative difficulty of the items for a large national sample. A number of important differences in the two samples, the length of time between testing, etc. restrict the comparability of these estimates.

Table 15

Median Percentages Answering Each Item Correctly
for the Letters and Sounds Subtest of the SESAT

	Pre	Post
NAM Sample	.45	.59
SESAT Norming Sample	.39*	.64**

*Beginning kindergarten

**Beginning first grade

Table 15 indicates that the set of items composing the Letters and Sounds subtest was slightly less difficult for NAM children at pretest than for a national sample of children beginning kindergarten. The posttest median for NAM children is slightly less than that of a national sample of children beginning first grade.

One important point which must be made here is that all of the testing for the present evaluation was done on an individual basis. The national norms for the SESAT were based on the results of group administrations. The differences in item statistics may be at least partially the result of the differences in testing procedures, although the exact effect is uncertain.

Nevertheless, if we can attach some credibility to the findings, we would have to say that the NAM sample, although somewhat younger than the national sample, started out with about the same or a slightly higher degree of skill (as measured by these items) than the national sample. Moreover, the NAM group improved only slightly less than the older national sample in a somewhat shorter period of time.

Aural Comprehension (SESAT). Table 12 reveals that a modest, but statistically significant, gain was achieved from pre - to posttest on this section of the test battery. This measure of comprehension was included in the battery to determine if improved aural comprehension might be a side effect of the NAM instructional program. Since the program required the child to listen to and react to tape-recorded instructions, it was postulated that improvement in that area might occur.

Table 16 suggests that the children participating in the NAM program were somewhat less able to answer these questions at pretest than were the children making up the SESAT norming sample. The gap at posttest remained about the same, indicating that NAM graduates seem to have kept pace with the children in the national sample.

Table 16

Median Percentages Answering Each Item Correctly for the Aural Comprehension Subtest of the SESAT

	Pre	Post
NAM Sample	.55	.70
SESAT Norming Sample	.66*	.84**

*Beginning kindergarten

**Beginning first grade

Beginning Sounds. In contrast to the Letters and Sounds section of the SESAT, the Beginning Sounds subtest required the child to choose the letter that a word begins with ("Look at the picture of the bear. Point to the letter that bear begins with."). The Letters and Sounds section required the child to determine which beginning sounds were the same, without having to attach the appropriate letter to that sound.

This test was administered on a posttest only basis. The children in the mini-center sample seemed to do quite well on these items, averaging nearly five of a possible seven items correctly. Since children were not very familiar with the alphabet when they began the program, as revealed by the relatively low pretest scores on the letters subtest, it can probably be safely assumed that children generally would not have been able to match a letter with its sound had this test been given at pretest. Most likely, scores would have hovered around a chance score of 1.8.

Table 13 suggests that only the task of attaching the "th" sound to the word "thumb" was very difficult for the sample of mini-centers graduates. It is interesting to note that the two easiest items for this group were those dealing with the sounds of "b" and "s." These sounds were the first to be introduced and the ones most frequently repeated in the NAM lessons. The "th" sound, on the other hand, was introduced near the end of the series of NAM lessons and was, therefore, presented less frequently. Overall, it seems significant that children performed so well on this subtest, since the NAM lessons place heavy emphasis on a phonics approach.

Sight Words. On a posttest-only basis, children were asked which of three words they could identify. These words were ones presented with varying degrees of frequency in the NAM lessons.

Two-thirds of the children were able to read the word "Bus," while nearly 40 percent knew the word "Bike." These findings are, in general, consistent with those of the previously discussed word-reading segments; i.e., recognition of words was easier than reading them for these children.

Word Families. The purpose of this section, which was given at post-test only, was to determine if children were becoming familiar with the word families that were presented in the NAM lessons.

First, the tester tried to make certain that the child being tested knew the sound of "p." (Results of the beginning sounds subtest indicate that nearly three quarters of the sample could already match the letter "p" that the "p" sound in pan.) Several words, each beginning with "p," were then presented individually.

The results shown in Tables 12 and 13 suggest that this series of tasks was quite difficult for the children in the sample. Again, however, the relative difficulty of the items seemed to be related to the frequency of presentation in the NAM lessons. Lessons dealing with the -am or -at families, for instance, occurred much more frequently than those presenting members of the -*et* or -*ay* families (see Appendix D, which contains the results of the lesson content analysis). The data suggest that children were more familiar with the former families than with the latter ones at time of posttesting, although all of the items in this subtest were still relatively difficult for NAM graduates.

Attitudes Toward Reading-Related Activities. Overall, there were no significant changes from pretest to posttest in the attitudes of mini-center children as measured by the instruments used.

The first of the three subtests (Attitude 1) making up the attitude measure was designed to determine whether the children in the sample were capable of discriminating between happy and sad events. If children were unable to correctly answer the questions on this subtest, and thus to discriminate between the concepts of happy and sad when these concepts were presented in this fashion, then there would be little reason to proceed to the subsequent subtests of the measure. Fortunately, however, the children in the mini-center sample were able to answer correctly, on the average, 4.5 of the six items on the pretest. A small, but insignificant, gain was observed from pretest to posttest on this subtest.

The second subtest (Attitude 2) required the child to indicate how he felt (happy or sad) about certain activities by pointing to the appropriate picture (a happy one or else a sad one) showing how he felt. Generally, the children in the sample indicated they were happy regardless of the activity presented to them. The items which determined the score for this subtest were the five depicting reading and reading-related activities (Items 7,8,12, 14, and 16--see Table 13). On the average, the pretest responses of NAM enrollees indicated they were happy about four times out of five when involved in the activities specified. A slightly, but insignificantly, higher posttest score was recorded for this subtest.

Since data from previous attempts to assess children's attitudes indicated that children tend to indicate they are happy irrespective of the particular situation, it was deemed desirable to include a third subtest which would require the child to choose between two activities -- one of which was a reading or reading-related activity. As can be seen from Table 13, children did in fact tend to indicate they were happy regardless of the activity.

Table 12 reveals no change from pretest to posttest on the third attitude subtest (Items 18, 21, 22, 23, 24, Table 13). Since this subtest is characterized by very low reliabilities, however, the results should not be "overinterpreted." Examination of individual item statistics shows that children's responses did not change much except for two items. These two items suggested that the tendency for children to favor "looking at a story book" over "watching television" was slightly greater on the posttest than on the pretest. On the other hand, children were less likely on the posttest to choose "getting a new book" (over "getting a new shirt or dress") than they were on the pretest.

The two items (19 and 20) on the third subtest containing "listening to the tape recorder" as one of the options suggested that this activity became relatively less popular from pretest to posttest. Possibily, some of the initial fascination with the tape recorder had diminished, as a result of daily exposure to the device. Nonetheless, even with this continuous exposure, the tape-recorder was still fairly popular at the end of the program. For instance, half of the sample indicated that they preferred "listening to the tape-recorder over "watching television," while about a third of the children preferred the tape-recorder to "drawing and coloring a picture."

Children at Home

The second condition under which the NAM program was administered was the at-home condition. As stated earlier, this condition included children who were receiving the NAM lessons in their own homes with their parents acting as learning partners. The activities of these parents were supported by field learning helpers, but the primary responsibility for the implementation of the program, however, rested with parents.

Although data were collected on over 50 children in the at-home condition, pretest and posttest data were available for only seven children. A combination of factors seems to have accounted for this small number of children. First of all, a relatively large number of parents may have been unable to continue the program with their children. Secondly, the mobility of some of the parents precluded the collection of posttest data, even though these parents may have completed the program. Exact figures on the number of parents failing to complete the program, however, and the reasons associated with non-completion were not available, since field learning helpers were asked to inform evaluation staff only of those children who had completed the program. In hindsight, it is apparent that the systematic collection of reasons for parents' failure to complete the program would have been valuable, especially for future attempts at implementing the at-home condition.

In any event, it is known that at least seven (14%) of the children at home for whom data were available were able to complete all of the NAM lessons. Reports from NAM staff indicate that a number non-finishers were able to complete a significant number of lessons, although these children were not posttested.

The pretest and posttest scores of the group of at-home graduates are presented in Table 17. Although the data are based on a very small number of cases, they do provide some interesting information. The first noticeable feature of the data is that the at-home children scored higher at pretest on each of the cognitive subtests than did the mini-center children. The superiority of the at-home children was also apparent on the posttest. Since, however, the initial scores of at-home children were high, the ceiling effect was even more in evidence for this group than for the mini-center sample. Although the children participating in the NAM program at home scored near the top of each of the subtest scales on the posttest, the gains made by these children were often less than those made by mini-center graduates. Presumably, this finding can be attributed to the ceiling effect noted above.

It is interesting to note that, in general, the areas in which the at-home children appear to have made the greatest progress were the most difficult areas, i.e., those requiring reading. For example, these children were able, on the average, to read correctly about seven more of the eleven words presented on the reading identification posttest than on the pretest.

Overall, a statistically significant gain of nearly 34 points was computed for the sample of at-home participants. Generally, the gains noted in each of the subtests are consistent with the findings based on the larger sample of mini-center participants.

Table 17

Pretest, Posttest and Gain Scores for Children at Home

Subtest	Maximum Possible Score	Pretest		Posttest		Gain	
		Mean	SD	Mean	SD	Mean	SD
Colors	4	3.4	.7	4.0	.0	.6	.7
Concepts	10	8.3	1.4	9.4	.7	1.1+	.8
Shapes	7	5.1	1.5	6.7	.5	1.6+	1.4
Numbers	10	7.6	2.4	10.0	.0	2.4+	2.4
Counting	30	17.9	10.6	27.4	6.3	9.6+	9.0
Letter Recognition	8	5.6	2.6	7.7	.5	2.1	2.6
Letter Identification	8	4.7	9.3	8.0	.0	3.3+	3.1
Reading Recognition	7	4.0	2.2	6.3	1.2	2.3+	2.1
Reading Identification	11	1.0	1.7	7.9	4.4	6.9*	4.0
SESAT Letters and Sounds	10	5.6	2.7	9.1	2.1	3.6+	3.2
SESAT Aural Comprehension	10	8.0	.9	8.1	1.1	.1	1.0
Beginning Sounds	7	-	-	6.4	1.0	-	-
Sight Words	3	-	-	2.6	1.0	-	-
Word Families	5	-	-	3.6	2.0	-	-
Total	130	71.1	21.6	104.7	12.0	33.6*	12.0
Attitudes 1	6	5.3	.9	5.6	.7	.3	1.2
Attitudes 2	5	4.3	1.0	5.0	.0	.7	1.0
Attitudes 3	5	2.0	1.1	2.1	1.6	.1	2.2

* Significant at the .01 level

+ Significant at the .05 level

Comparison With Sesame Street Test Norms

Embedded in the NAM test battery were several items which were used in ETS's evaluation of the first year of the television show Sesame Street. Only those items testing skills specifically taught in the NAM lessons were included in the NAM battery, however.

Since the Sesame Street tests had been shown to be appropriate for three-, four-, and five-year-old children from a variety of populations (four-year-old disadvantaged children from inner-city areas were the most heavily represented group)* and since a considerable amount of data on these items was available, the decision was made to use those items that were relevant to the implicit objectives of the NAM program.

The actual number of these items that were judged to measure skills taught in the NAM lessons, however, turned out to be relatively small. Nonetheless, it was felt that the data on these items, might provide useful baseline information for the evaluation of the NAM program.

There are several important points to remember when one compares the Sesame Street data with the data obtained on the present sample of NAM children. Although the children in both samples were approximately the same age at pretest, the time between pre-and posttesting was six months for the Sesame Street sample. Since the NAM program allowed children to proceed at individual rates, the amount of time between pre- and posttesting varied for each child, since each child was tested when he began and again when he completed the program.

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* The median age of the Sesame Street sample was 53 months at pretest. About 78% of the total sample were termed disadvantaged as determined by traditional SES measures.

For the children in the NAM sample, the median time between pretesting and posttesting was about eight months, although it ranged from less than five months to over a year. Not only were there differences in intervals between pre-and posttesting for the two samples, but this interval may have been shorter for the more able NAM students than for the less able ones in our sample. Needless to say, these conditions greatly restrict the degree of comparability of the two sets of data. Nevertheless, data for the Sesame Street sample are presented here to give the reader some idea of the difficulty of the items for a large sample of children from five geographically dispersed sites.

It is important to mention here that the presentation of data from the Sesame Street evaluation is in no way intended to allow comparisons between the effectiveness of Sesame Street and the NAM program. The data are intended only to help the reader establish some general perspective for the status of NAM children in the absence of more appropriate comparisons.

Table 18 provides item statistics for those items common to both the Sesame Street and the NAM evaluations. The posttest statistics from the Sesame Street evaluation presented here reflect what may be considered an "average" * amount of Sesame Street viewing. Pretest item statistics for the Sesame Street sample naturally do not reflect the effects of Sesame Street viewing since pretesting was concluded before the start of the first year's telecast.

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*In the first year's evaluation of Sesame Street children were retroactively grouped according to the frequency with which they had watched Sesame Street during the preceding year. Quartiles were established in which children had viewed the show rarely or never, about four or three times a week, about four or five times a week, and more than five times a week. The statistics presented here are the averages computed using the groups watching two or three times a week and four or five times a week. The decision, therefore, which is admittedly somewhat arbitrary, may be thought of as representing a group which viewed on the average about three or four times a week.

Table 18

Percentages of NAM Subjects and *Sesame Street* Subjects Answering Each Item Correctly on Pretest and Posttest for Items Common to Both Evaluations

SUBTEST AND ITEM	Pretest	% Correct	Posttest	% Correct
CONCEPTS	NAM	*Sesame Street*	NAM	*Sesame Street*
1. Biggest	95%	96%	100%	99%
2. Smallest	87	81	95	93
3. First	76	*	100	90
4. Last	32	*	57	41
SHAPES				
What is this called:				
5. Square	48	29	86	61
6. Circle	71	63	98	83
7. Rectangle	13	13	71	39
8. Triangle	40	33	83	67
Which one is a:				
9. Circle	86	84	98	94
10. Triangle	57	33	94	67
NUMBERS				
What is this:				
11. 2	44	19	98	53
12. 6	29	12	89	38
13. 9	24	7	81	36
14. 10	16	12	84	40
LETTERS				
Which letter is:				
15. A	55	38	100	68
16. P	38	29	97	61
17. f	52	26	100	51
What is this letter:				
18. S	31	12	100	39
19. C	28	13	92	38
20. H	22	10	88	37
21. W	22	7	83	46
22. m	22	6	95	28
23. e	22	7	89	30
24. t	13	9	95	35
25. g	13	2	84	11
READING WORDS				
26. HAT	8	1	32	2
27. STREET	5	0	8	2

It is probably safe to assume, however, that both the pre-and posttest NAM results reflect the effects of Sesame Street viewing.** Moreover, it is difficult, if not impossible, to unravel these effects. Complicating matters further was the introduction of a new television show, The Electric Company, which, although its primary target was children in second grade, may also have had some effect on children in the NAM sample.

Inspection of Table 18 reveals that, in general, the NAM mini-center graduates were more able to answer the questions used in the Sesame Street evaluation at pretest time than were the children in the Sesame Street sample. The exact reason for the relative superiority of NAM children at pretest is uncertain. It is possible that it may not be appropriate to consider these children disadvantaged, at least in the educational sense. Another possibility, as was stated above, is that the effects of previous Sesame Street viewing may be at least partly responsible for the relatively high pretest scores of the NAM sample.

Gains in percentages answering each item correctly were, in general, also higher for NAM graduates than for the Sesame Street sample. The relative superiority of NAM graduates (on both pretest and posttest) was most apparent on the Numbers and the Letters subtests. NAM graduates were reaching the ceiling on most of the items contained in these subtests.

** Data which are presented later in this report suggest a high proportion of the NAM sample were regular Sesame Street viewers (nearly half watched the show every day or nearly so, according to parent questionnaire responses.

Plausibility of Rival Hypotheses

In their well-known work on experimental and quasi-experimental research Campbell and Stanley (1963) discuss several threats to the internal validity of research findings. Since the results of the NAM evaluation presented here are subject to alternate interpretations because of these threats, evidence regarding the plausibility of several of the most likely rival hypotheses will be presented.

One of the primary comparisons that is made in the present evaluation is simply to look at differences between pretest and posttest scores on a variety of measures. Without suitable control groups (or other types of controls) it is not possible to say with any certainty how much of the observed changes can be attributed to the educational treatment that occurred between testing periods and how much should be attributed to other factors such as history and maturation. It is probable, for example, that other events or experiences also affected NAM children during the period between pretest and posttest and that these events or experiences were responsible for the changes observed. While it was not possible to control the effects of history in the simple pre-post design that was employed in the mini-center condition, it is possible to assess the plausibility of this competing hypothesis, i.e., historical effects.

Several historial events or experiences that could account for changes in NAM children's tests scores came to mind. These were (1) participation in other formal educational programs, (2) exposure to the recently developed educational television programs such as Sesame Street and The Electric Company, and (3) parental influence. In order to determine the plausibility of each of the above, questions concerning children's participation in each activity.

were included in the parent questionnaire. Of course, the limited number of questions that could be asked should be regarded only as a rough indication of the state of affairs.

Parents were asked to indicate which, if any, of a number of educational programs their children were, or had been, involved in. Table 19 summarizes the responses of parents to questions about their children's participation in other programs. These responses were taken from the questionnaires returned by 52 of the parents whose children finished the NAM program either at home or in one of the NAM mini-centers.

Table 19

Participation of NAM Children in Other Educational Programs

Does your child now attend any of the following programs?

Program	N	%
Head Start Program	6	11.5
Day-Care Center	0	0
Kindergarten	12	23.1
Nursery School	0	0
Other:		
Follow Through	4	7.7
First Grade	4	7.7
Second Grade	1	1.9
Other	1	1.9
No Response	1	1.9
Total	29	55.7

Table 19 (cont.)

In the past, did you child ever attend any of the following programs?

Program	N	%
Head Start Program	10	19.2
Day-Care Center	2	3.8
Kindergarten	8	15.4
Nursery School	11	21.2
Other	0	0
No Response	1	1.9
Total	32	61.5

As Table 19 shows, a relatively high proportion (23%) of NAM graduates were enrolled in kindergarten when they finished the NAM program. Since it was possible for a child to attend kindergarten for half a day and an NAM mini-center during the other half, some children may have attended both programs during the same period. On the other hand, NAM graduates may have started kindergarten near the end of the NAM program. In any event, it should be remembered that these responses were made by parents when their children finished the NAM program.

A number of other children (31%) were enrolled in a variety of other programs at the time their parents were surveyed. Head Start was the most popular of these programs.

Although children might not have been enrolled in another program at precisely the time when parents replied to the questionnaire, they might have participated in such a program during some prior period. Responses to the second question, appearing in Table 19, reveal that many children had indeed, at some prior time, attended nursery school (21%), Head Start (20%), or kindergarten (15%) programs. This attendance may have been either prior to or coincidental with attendance in the NAM program. Thus the hypothesis that attendance at other educationally related programs at least partially contributed to gains made from pre- to posttesting must be regarded as at least moderately plausible.

The popularity and apparent effectiveness of the recent efforts of Children's Television Workshop--specifically, the television programs Sesame Street and The Electric Company--cannot be ignored in an evaluation like the present one. In view of the popularity of these shows it seemed necessary to determine the frequency with which children in the NAM sample viewed these programs.

Table 20 shows that a high proportion of NAM graduates were regular Sesame Street viewers. Nearly half (48%) watched the program every day or almost every day, while less than 10% did not watch at all, according to parent reports. An overwhelming majority (89%) of parents indicated that their Children had watched the show in the past.

Table 20

Sesame Street Viewing Habits of NAM Gradates

Does your child ever watch the TV show Sesame Street?	N	%
No	4	7.7
Yes, every day or almost every day	25	48.1
Yes, about 3 or 4 times a week	7	13.5
Yes, about 1 or 2 times a week	10	19.2
Yes, less than once a week	3	5.8
Don't know	2	3.8
No response	1	1.9
Total	52	100.0

Table 20 (cont.)

Did your child ever watch Sesame Street in the past?	N	%
Yes	47	90.4
No	3	5.8
Don't Know	2	3.8
Total	52	100.0

On the other hand, The Electric Company appeared to be less popular among NAM graduates than Sesame Street. Thirty-three% of parents reported that their children did not watch the show, while less than 20% said their children viewed every day or almost every day (See Table 21).

Table 21

Electric Company Viewing Habits of NAM Graduates

Does your child ever watch the TV show The Electric Company?	N	%
No	17	32.7
Yes, every day or almost every day	10	19.2
Yes, about 3 or 4 times a week	5	9.6
Yes, about 1 or 2 times a week	10	19.2
Yes, less than once a week	4	7.7
Don't Know	4	7.7
No Response	2	3.8
Total	52	99.9

Several questions pertaining to various types of parent-child interactions were included on the parent questionnaire. Most of these questions dealt with those NAM supplementary materials which were designed to be used by children (with parental aid) when they returned home from mini-centers. The responses to those questions are discussed elsewhere in this report.

One question of a more general nature dealt with the frequency with which parents read stories to their children. The responses to this question appear in Table 22, which suggests that, in the majority of cases, a parent spent at least several times a week reading stories or looking at books with his or her children. While this amount of interaction could have contributed to test score gains, it is also possible that this interaction could have resulted from the encouragement of parents by NAM learning partners. If the latter is true, then any effects resulting from this parent interaction could be attributed to the NAM program.

Table 22

Frequency with which NAM Parents and Child Engaged in Story Reading Activities

How often do you read stories or look at books with your children?	N	%
Never or hardly ever	6	11.5
Once a week or less	9	17.3
Several times a week	30	57.7
Every day or almost every day	7	13.5
Total	52	100.0

Other sources of invalidity to the one-group pretest-posttest design employed in the mini-center condition include maturation and testing. Children may have performed better on the posttests simply because they were older and better able to respond in a testing situation. Previous test-taking experience on pretests may also have made testing easier at the time children were given posttests.

Another source of invalidity which limits the extent to which findings are generalizable is the high rate of mortality witnessed in NAM mini-centers and among children working at home. It is possible, for example, that children experiencing success in the program were more likely to complete the program.

Many sources of invalidity mentioned above, however, were controlled in the pretest-posttest control group design that was in effect at the independent day-care center. Results at this center are discussed below.

Children at the Independent Day Care Center (OLDSCC)

Pretest and posttest data were available for 52 children who attended the independent day-care center. These children were divided about equally between the NAM group (N=27) and the control group (N=25). Although these numbers indicate that there was some attrition during the period between pretest and posttest, the rate of attrition was almost exactly equal for the two groups, since the initial sizes of the NAM group and the control group were 43 and 42, respectively.

Overall results

Comparison of test data obtained from NAM mini-centers with data obtained at the independent day-care center reveals many similarities among the two sets of data (See Table 23). First of all, the pretest scores of the children at the day-care center (NAM and control groups combined) were very similar to the pretest scores of mini-center children.

For example, the pretest total of 48.2 obtained by mini-center children was virtually the same as the 48.4 pretest score of day care-center children. In addition, the posttest total (89.5) for mini-center graduates was only two points higher than the total obtained by the NAM participants at the day-care center.

In order to increase the precision of the comparisons between the day-care experimental (NAM) group and the day-care control group and to adjust for slight differences in the pretest scores of these groups, a covariance analysis was used to adjust gain scores for pretest differences. Table 24, which summarizes the total scores for the mini-center and the day-care conditions, reveals that each of the NAM groups made greater gains than the control group. After covariance adjustments for initial pretest differences

TABLE 23

PRETEST, POSTTEST, AND GAIN SCORES FOR CHILDREN AT OLDSCC

		New Approach Method						Control						
		Pretest		Posttest		Gain		Pretest		Posttest		Gain		
Subtest	Maximum Possible Score	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Difference between Adjusted Gains 1
Colors	4	2.8	1.6	4.0	.2	1.1	1.3	2.4	1.4	3.5	1.0	1.0	1.3	.4 +
Concepts	10	7.4	2.1	9.0	.9	1.5	2.2	7.7	1.4	8.4	1.1	.8	1.6	[illegible]
Shapes	7	3.2	2.2	5.6	1.4	2.5	2.2	2.3	1.5	3.8	1.8	1.3	2.0	[illegible]
Numbers	10	5.5	3.0	9.1	1.2	3.6	2.7	4.0	2.7	8.4	1.6	4.4	2.5	.4
Counting	30	12.9	8.6	25.8	7.5	12.9	9.6	10.1	5.9	26.2	7.5	16.1	7.3	-1.3
Letter Recognition	8	5.6	1.8	7.6	.7	2.0	1.8	4.6	2.0	7.0	1.3	2.4	1.9	.4
Letter Identification	8	2.0	2.3	7.7	.5	5.7	2.2	2.2	2.2	5.8	2.7	3.6	2.7	2.0 *
Reading Recognition	7	2.1	.8	4.5	2.1	2.4	1.9	2.0	1.1	2.5	1.5	.5	1.6	1.9 *
Reading Identification	11	.3	.8	2.5	2.4	2.3	2.6	.2	.6	.8	2.0	.6	2.1	1.8 *
SESAT Letters and Sounds	10	3.8	2.2	5.9	2.8	2.1	3.3	3.8	1.3	3.7	1.5	-.1	2.2	2.2 *
SESAT Aural Comprehension	10	5.7	1.8	5.6	2.3	-.1	2.5	4.8	1.7	5.0	1.7	.2	2.9	.6
Beginning Sounds	7	-	-	4.9	1.9	-	-	-	-	2.4	1.7	-	-	2.3 *
Sight Words	3	-	-	1.3	1.3	-	-	-	-	.1	.4	-	-	1.2 *
Word Families	5	-	-	1.2	1.8	-	-	-	-	.2	.8	-	-	1.0 +
Total	130	31.8	17.4	87.5	16.5	35.7	13.3	45.0	12.0	74.4	12.7	29.5	10.4	8.5 +
Attitudes 1	6	4.3	1.2	5.3	.9	1.0	1.6	3.7	1.1	4.3	1.2	.6	1.7	1.0 *
Attitudes 2	5	4.6	.7	4.1	1.3	-.4	1.6	3.7	1.5	3.5	1.4	-.2	1.7	.5
Attitudes 3	5	2.1	1.0	2.5	1.2	.4	1.1	1.8	1.0	2.5	1.2	.7	1.6	- .1

1 (NAM Minus Control)

* Significant at the .01 level

+ Significant at the .05 level

were made, the NAM day-care participants outgained the control group by 8.5 points. The NAM mini-center participants outgained the control group by an even greater margin (13 points).

Table 24

Summary of Total Scores for the Mini-center and the Day-Care Conditions

Group	Pretest	Gain
NAM Mini-centers	48.2	41.3
Day-Care Center:		
NAM	51.8	35.7
Control	45.0	29.5
Day-Care Center (Adjusted Scores):		
NAM	48.4	36.8
Control	48.4	28.3

Results by Subtest

Table 23 shows that, after adjusting for pretest differences between the two day-care center groups, the NAM participants outgained the control group on all but one of the eleven cognitive subtests. Six of the differences were statistically significant, as was the difference between total gain for the two groups.

Significant differences were also in favor of the NAM group for each of the posttest-only subtests. Also noted was a significantly greater gain for the NAM group on the first of the three attitude subtests -- the one requiring correct identification of happy or sad events.

The areas in which the most prouounced differences between the NAM and control groups occurred were colors, shapes, letter identification, reading recognition, reading identification, letters and sounds, beginning sounds, sight words, and word families.

There were several other areas in which NAM subjects progressed slightly, but not significantly, better than the control group. Finding large differences between the groups for these areas was not possible, since both groups tended to score near the top of many of these scales. On the concepts subtest, for example, the NAM and control group attained posttest scores of 9.0 and 8.4, respectively, on the ten-point scale.

As was stated earlier, NAM operations at the independent day-care center were terminated before all of the children could complete the full series of 84 lessons. A total of 12 children had yet to complete the lessons when operations ceased. Since exclusion of the scores of these children would have severely reduced the size of the NAM sample, the decision was made to include the scores of these children in the analysis. It is possible, therefore, that if all NAM children had been able to complete the program, differences among the NAM group and the experimental group may have been even greater. It is also possible, however, that existing differences would have "washed out" had a longer time period been observed. Table 25 indicates the number of lessons completed by each of the non-finishers. The majority of non-finishers were about three-quarters finished.

Table 25

Number of Lessons Completed by

Day-Care Center Non-Finishers

Number of Lessons	Number of Children
Fewer than 50	1
50 - 59	3
60 - 69	7
70 or more	1

Individual item statistics presented in Table 26 show the relative superiority of NAM graduates in more detail. The most striking differences between the NAM graduates and the control group appear on those items requiring reading skills. In general, the NAM group's superiority was most apparent on those items that were most directly related to the content of the NAM lessons.

Table 26

Percentage of Children at OLDSCC Answering Each Item Correctly on Pretests and Posttests

	Pretest		Posttest	
Subtest and Item	NAM	Control	NAM	Control
COLORS				
Naming:				
1. Red	70%	64%	100%	88%
2. Blue	70	60	100	84
3. Green	67	64	100	84
4. Yellow	74	56	96	92
CONCEPTS				
5. Which ball is same?	93	92	100	100
6. Which pencil is longest?	74	92	100	100
7. Which is straight line?	78	76	100	96
8. Which is biggest bear?	93	96	100	96
9. Which is smallest bear?	96	96	89	92
10. Which bird is above cage?	22	44	59	24
11. Which dog is in box?	93	92	96	96
12. Which trees are all in row?	52	36	59	48
13. Which balloon is at bottom?	74	76	93	96
14. Which balloon is at top?	70	68	100	96
SHAPES				
What is this called:				
15. Square	35	17	81	67
16. Circle	62	33	88	71
17. Rectangle	12	0	54	17
18. Triangle	27	4	73	29

Table 26 (cont.)

Percentage of Children at OLDSCC Answering Each Item Correctly on Pretests and Posttests

Subtest and Item	Pretest NAM	Pretest Control	Posttest NAM	Posttest Control
SHAPES (continued)				
Which one is a:				
19. Circle	85%	92%	100%	100%
20. Square	46	50	85	42
21. Triangle	50	33	81	54
NUMBERS				
Which is:				
22. 3	74	56	100	100
23. 8	78	60	96	96
What is this:				
24. 6	30	24	85	84
25. 9	19	12	85	68
26. 2	52	36	96	88
27. 10	22	24	85	80
Number/Numeral Correspondence:				
28. 2 frogs	74	68	96	96
29. 5 turtles	81	56	100	100
Numerical relations:				
30. First	78	48	100	96
31. Last	44	20	63	32
Counting:				
32. To 10 without mistakes	42	50	96	100
33. To 20 without mistakes	12	7	82	81

Table 26 (cont.)

Percentage of Children at OLDSCC Answering Each Item Correctly on Pretests and Posttests

	Pretest		Posttest	
Subtest and Item	NAM	Control	NAM	Control
NUMBERS				
Counting:				
34. To 30 without mistakes	7%	5%	51%	67%
LETTERS				
Which letter is:				
35. A	93	76	100	96
36. P	67	56	100	92
37. B	81	72	100	96
38. E	81	76	100	96
39. f	70	76	100	92
40. b	63	40	70	60
41. n	56	36	96	92
42. h	44	32	89	76
What is this letter:				
43. S	33	24	100	68
44. C	37	36	100	84
45. H	33	48	100	80
46. W	26	48	96	72
47. m	26	16	93	72
48. e	22	16	100	80
49. t	7	12	100	72
50. g	11	16	78	48

Table 26 (cont.)

Percentage of Children at OLDSCC Answering Each Item Correctly on Pretests and Posttests

Subtest and Item	Pretest NAM	Pretest Control	Posttest NAM	Posttest Control
READING WORDS				
Which one says:				
51. BIRD	41%	48%	74%	16%
52. SUN	26	32	78	68
53. mop	22	12	44	24
54. BOAT	33	16	56	32
55. AT	26	32	59	36
56. sister	37	20	81	32
57. hand	30	44	59	44
What does this say:				
58. TO	7	4	44	17
59. HAT	0	0	22	8
60. STREET	4	0	0	0
61. met	0	0	26	4
62. mouse	0	0	44	4
63. big	0	8	15	4
What does this sentence say:				
64. THE	4	0	26	4
65. LITTLE	4	0	0	4
66. BOY	4	4	41	21
67. IS	0	0	33	4
68. HAPPY	4	0	0	4

Table 26 (cont.)

Percentage of Children at OLDSCC Answering Each Item Correctly on Pretests and Posttests

Subtest and Item	Pretest NAM	Pretest Control	Posttest NAM	Posttest Control
LETTERS AND SOUNDS (Stanford Early School Achievement Test)				
Sound of:				
69. g	41%	38%	52%	33%
70. m	44	46	89	38
71. c	48	54	63	29
72. t	63	67	67	63
73. r	19	17	41	33
74. p	41	33	48	21
75. h	26	13	44	33
76. s	33	29	52	58
77. d	33	25	63	33
78. sh	33	63	70	29
AURAL COMPREHENSION (Stanford Early School Achievement Test)				
79. Story 1	56	46	70	54
80. Story 2	52	54	59	75
81. Story 3	67	67	63	50
82. Story 4	59	42	48	46
83. Story 5	52	46	52	54
84. Story 6	67	33	63	54
85. Story 7	52	38	41	42
86. Story 8	48	38	52	38
87. Story 9	63	67	70	46
88. Story 10	56	50	41	38

Table 26 (cont.)

Percentage of Children at OLDSCC Answering Each Item Correctly on Pretests and Posttests

Subtest and Item	Posttest	
	NAM	Control
BEGINNING SOUNDS		
Which letter(s) does this word begin with:		
89. Bear	83%	33%
90. Sandwich	79	33
91. Apple	83	44
92. Pan	72	33
93. Foot	66	33
94. Wig	76	52
95. Thumb	34	11
SIGHT WORDS		
96. BUS	54	4
97. CAR	39	4
98. BIKE	39	4
WORD FAMILIES		
99. (P)AM	24	4
100. (P)AT	34	4
101. (P)ET	28	7
102. (P)AY	7	0
103. (P)AN	31	4

Table 26 (cont.)

Percentage of Children at OLDSCC Answering Each Item Correctly
on Pretests and Posttests

Subtest and Item	Pretest NAM	Pretest Control	Posttest NAM	Posttest Control
ATTITUDES TOWARD READING-RELATED ACTIVITIES				
	% Correct			
Happy and Sad (Attitude 1)				
1. Which is happy?	85	65	100	96
2. Happy or sad	81	61	100	96
3. Opening a present	85	74	100	57
4. Falling off bike	30	43	67	52
5. Dropping lollipop	56	52	70	70
6. Eating ice cream	89	74	89	61
Attitude towards reading-related activities (Attitude 2)	% Happy			
7. Looking at a picture book	89	61	89	74
8. Learning ABC's	81	78	81	57
9. Watching television	87	75	89	67
10. Listening to tape recorder	82	78	76	63
11. Drawing and coloring picture	87	75	93	78
12. Looking at story book	96	74	85	70
13. Singing a song	90	80	89	85
14. Getting book as a present	93	78	78	78
15. Getting shirt or dress as present	82	67	93	85
16. Listening to story	96	78	81	70

Table 26 (cont.)

Percentage of Children at OLDSCC Answering Each Item Correctly on Pretests and Posttests

Subtest and Item	Pretest NAM	Pretest Control	Posttest NAM	Posttest Control
ATTITUDES TOWARD READING-RELATED ACTIVITIES (continued)	% Choosing Each Option			
Like to do best (Attitude 3)				
17. Eat ice cream	73	75	86	70
Drink water	27	25	14	30
18. Look at picture book	38	39	15	39
Look at story book	62	61	85	61
19. Watch television	70	65	44	39
Listen to tape recorder	30	35	56	61
20. Listen to tape recorder	19	13	30	30
Draw and color picture	81	87	70	70
21. Get a new book	19	30	27	52
Get a new shirt (dress)	81	70	73	48
22. Listen to story	35	35	50	39
Watch television	65	65	50	61
23. Look at story book	50	35	65	61
Watch television	50	65	35	39
24. Sing a song	58	78	77	61
Listen to story	42	22	23	39

Parental Reaction to NAM

Several questions included on the parent questionnaire sought to obtain the perceptions of parents with regard to the effectiveness of the program. Responses to these questions appear in Tables 27, 28, and 29. Overall, it must be said that parents' reactions to the program were quite favorable. With respect to major benefits, parents perceived that beginning to read and learning to enjoy reading and related activities were the primary benefits. Two-thirds of those returning questionnaires indicated that their children definitely began to read, while none said his child did not begin to read. About the same proportion (61%) revealed that their children had definitely learned to enjoy reading.

A high proportion (44%) of parents also thought that the program definitely promoted a better knowledge and understanding of their children, presumably by providing a vehicle for parent-child interaction. A lower percentage (27%) of parents suggested that the program was definitely responsible for bringing parent and child "closer."

It is important to note that very few parents said that the options listed were not benefits, although many parents chose not to respond to all the options. Possibly, the high non-response rate for the options pertaining to parent-child relations resulted from parent indecision regarding the effect of the program on these activities.

The majority of parents gave the NAM program high success ratings. With respect to learning to read, seventy-eight % of those returning questionnaires thought that NAM had been "very successful" in this regard. About the same proportions of parents thought NAM was very (80%) or somewhat (13%) successful in areas other than reading. The areas in which parents considered

NAM to be helpful have been categorized in Table 28.

Although the question sought to ascertain areas of benefit other than reading, the area of reading was mentioned most frequently (12 times). Mentioned equally as often as reading were benefits which were classified as "better relationships with others." A related benefit that was the next most frequently perceived (10 times) was improvement in the area of "sharing, helping, cooperating, or participating." Of other socialization traits receiving mention better "behavior or self-discipline" and "communication, understanding, or self-expression" were the improvements most often noted. Improvement in several other cognitive and social skills was also mentioned by parents. These traits included facility with letters and sounds, enjoyment or interest in learning, independence, and several others which are listed in Table 28.

In order to assess overall parent satisfaction with the NAM program, the following hypothetical question was posed to parents: "If you have other young children, would you also want them to attend the NAM program?" Only one parent indicated that she would not want her other children to participate in the program, while 83% of the parents responded affirmatively. (A total of 15% either expressed no opinion or were uncertain.)

Finally, parents were given the opportunity to make any other comments they might wish to make about their child's participation in the NAM program. Since the number of responses is fairly small, all of the responses have been reproduced, many of them verbatim. Of all the responses made, only two, which refer to the content of the lessons, can be considered unfavorable. Most responses need little interpretation and are presented in Table 28.

Table 27

Parental Reaction to NAM Program

What do you think were the main benefits that you and your child received from the NAM Program?

Benefit	Yes, definitely		Somewhat		No		No Response	
	N	%	N	%	N	%	N	%
My child began to read	35	67	8	15	0	0	9	17
My child learned to enjoy reading and related activities	32	61	7	13	1	2	12	23
The NAM Program brought me closer to my child	14	27	10	19	8	15	20	38
The NAM Program helped me to know and understand my child better	23	44	9	17	3	6	17	32

How successful do you think the NAM Program has been in helping your child learn to read?

Degree of Success	N	%
Very successful	41	78.8
Somewhat successful	8	15.4
Not very successful	0	0
Don't know	2	3.8
No Response	1	1.9
Total	52	99.9

Table 27 (continued)

In your opinion, how helpful has the NAM Program been for your children in areas other than learning to read?

Helpfulness	N	%
Not very helpful	1	1.9
Somewhat helpful	7	13.5
Very helpful	42	80.8
Don't know	0	0
No Response	2	3.8
Total	52	100.0

If you have other young children, would you also want them to attend the NAM Program?

Desired Attendance	N	%
Yes	43	82.7
No	1	1.9
Don't know	2	3.8
No response	6	11.5
Total	52	99.9

Table 28

Areas in which Parents Thought NAM was Beneficial

Area	Frequency of Mention
Reading	12
Spelling	4
Learning Shapes and Sizes	3
Learning Colors	3
Letters or Sounds	9
Coloring and Drawing	3
Counting or Number Activities	7
Behavior or Self-discipline	8
Overcoming Shyness, Improved Self-confidence	5
Sharing, Helping, Cooperating, or Participating	10
Communication, Understanding, or Self-expression	8
Better Relationships with Others	12
Independence	7
Enjoyment or Interest in Learning	7
Others	5

Table 29

Parent Comments about the NAM Program

Five parents expressed desire for some type of follow up activities.

One parent expressed concern about children being bored with traditional school activities as a result of participation in NAM. Would like to see the program open up to every child.

"The program is beautiful and my child really loved it."

"NAM has been very helpful to my child and I would recommend it for any child."

Child enjoyed NAM.

"Glad that I learned about the NAM program because it helped my child and me. Keep up the good work."

"NAM is one of the most sincere programs we have been involved with. Parents are invited to participate and are supported in their efforts. No matter how little education they have there is a way one can help."

"NAM has done wonders for my son."

Loving relationship between child and "wonderful" learning partner was responsible for child's success in program.

"I think it is a very good program and has really prepared my child for school in every way possible."

The kids and teachers helped child overcome shyness. "Wonderful program for preschoolers."

"She enjoyed the program and still wants to do her lessons."

"NAM program is wonderful."

"It starts children off with the idea that school is more than finger painting, coloring, and playing games."

"There have been more things learned than I can name."

"Helped my son in all areas."

"I am very proud [of] what the NAM program has taught my child."

"The NAM program is a wonderful program and I hope it can continue."

"I appreciate everything my child has learned while attending NAM and am pleased with my child's progress."

Table 29 (cont.)

One parent objected to some of the NAM materials which she believed were teaching children to hate.

NAM promoted better relationships between parent and child.

"A very good program, would like to see more kids enter into it."

"Very educational."

"Very good program and I would like to see it continue. If other children [benefited] as much as my child, they have a good start."

"The NAM program was great for my child but [scheduling was difficult for the working parent]. Keep up the good work."

"I think [my child] is almost at the first grade level."

"Completely satisfied with NAM."

"Very proud of what the NAM program has done for my son. I hope the program continues to help other Negro children."

"I hope the program will be around for a long time. [NAM was patient with my child] and he is now doing very, very well in public school. If you see a parent ...., tell him about NAM."

Difficulty in understanding one lesson discouraged child and resulted in a loss of interest in the lessons.

Helpful in preparing child for school.

"I think the program is great. We enjoyed doing the lessons. Wished that more children would have received the program."

"[NAM] brought us closer together because I gave him his lessons."

SUMMARY AND CONCLUSIONS

Summary

Data on the effectiveness of the New Approach Method were collected for each of the three NAM tryout conditions, i.e., children participating at NAM mini-centers, children receiving the lessons at an independent day-care center, and children receiving the lessons in their own homes. For each of these conditions, both cognitive and attitudinal data were gathered. In addition, the reactions of parents whose children participated either at home or in one of the NAM mini-centers were obtained.

In general, although there were differences among the results for the different conditions, the results from condition to condition had many similarities. The group of children attending NAM mini-centers made statistically significant gains in each of the cognitive areas tested. Children getting lessons at home also showed gains in each of these areas, although a few were not statistically significant due to the small number of children completing the lessons at home. In general, the cognitive areas in which the largest gains occurred were those which were emphasized in the NAM lessons.

There were no discernible changes in attitudes with respect to reading or reading-related activities, as measured by the instruments used, of children in either of these two conditions.

Children receiving the NAM lessons at the independent day-care center also made gains in all but one of the cognitive areas. Again there were no detectable changes in the attitudes of the children toward reading and related activities.

More important, however, than the gains shown by NAM children at this day-care center were the differences between gains made by the NAM group and those made by a control group at the facility, both of whom had been selected randomly from a pool containing all of the four-year-old children attending this day-care center. Although the control group also gained in several of the areas tested, the most pronounced differences in the performance of the two groups occurred in those areas which were emphasized in the NAM lessons. In general, these areas were those which required beginning reading skills.

Another dimension of the evaluation which produced interesting results was the survey of parents. Questionnaire responses indicated that parents were intimately involved in the NAM process and that they were satisfied with the results of the process. Parents perceived the primary benefit of the program to be in the area of beginning reading, although a number of other benefits were also mentioned. These other benefits included improvement in a variety of cognitive and social skills. Overall, parents rated the NAM program very highly. About four-fifths of the parents termed the program "very successful" in the area of reading and "very helpful" in areas other than learning to read.

Suggestions for Future Research

The basic approach to the evaluation of the current phase of the NAM program was to find out in what ways the program was effective, not why it was effective. Ideally, to answer the second question it would be necessary to manipulate the variables that are thought to be instrumental in making the program effective. Factors such as the degree of personalized attention given the child and the degree of tape recorder use should be included in the research design. For example, one group of children could be given lessons which repeatedly make reference to the child and the things that are personal to him, while another group would not receive this attention. An additional group might receive lessons without using the tape recorder in order to determine the degree to which the recorder, as opposed to the lessons, contributes to learning. Other variations could also be explored. For instance, a group might receive the NAM lessons without participating in the supplementary activities which mini-center learning helpers conduct. In short, then, the variables thought to be responsible for the effects noted in the present evaluation would be systematically manipulated in an experimental paradigm so that conclusions regarding the relative contribution of each variable could be made.

APPENDIX A

Description of NAM Mini-Centers Derived From Unstructured Observations

All of the mini-centers were decorated with examples of the children's artwork or with the workbook exercises they had completed. A variety of books and games and a few toys were available at each of the centers. These materials included play school toys, crayons, paste, construction paper, blocks, puzzles, balls, jumpropes, modeling clay, and a number of other games and materials, many of which were developed by staff at the centers.

Although activities varied from day to day and from center to center, it may be useful to mention some of the more frequently observed activities. The use of flash cards to review and reinforce the colors, letters, etc., introduced in the NAM lessons, was observed several times. Other activities included number drills in which children were requested to show the proper number of fingers in response to the learning helper's calling out numbers or to give the correct number in response to the learning helper's raised fingers. Children were also asked to write the letters and numbers they had been learning.

The use of story- or picture-books was popular at each of the centers. At one center children were observed being shown pictures and asked to respond with an appropriate caption. Story reading was also a frequent activity.

Correspondence between upper- and lower-case letters was reinforced by using simple puzzles. each of which consisted of the upper-case letter and the corresponding lower-case one.

Various sorting games were also used to review numbers, shapes, and letters. A variety of matching games in which children were asked to match words, letters, or numbers was also popular.

A number of group activities were devoted to the recognition by sight of various numbers, letters, words, or colors. For example, children were shown colored paper (sometimes with the name of the color written on the paper) and asked to respond. Similar games were played with numbers and words in which numerals and the corresponding word or else words and corresponding pictures were used.

Some type of arts and crafts activity, such as use of construction paper, drawing, pasting, or coloring, was usually part of the daily routine as were snack, rest, and free play periods.

Needless to say, the impressions discussed above are not meant to be exhaustive descriptions of the activities at NAM mini-centers. Instead, they are intended to give the reader a flavor of the kinds of activities in which children were engaged when awaiting their daily NAM lesson.

APPENDIX B

Learning Helpers' Descriptions of Games, Materials, Equipment, and Activities at NAM Mini-centers

"Most of the materials were made by us. Books, blocks, puzzles, and only a few toys were available. Play-doh was also a favorite. Most of the puzzles were made by us. There were matching, phonic, and word games. Sensitivity games were played. We had a mattress from a couch on which the children tumbled and practiced gymnastics. We had balls and a jump rope. There were materials for a large number of arts and crafts games. We had games for children to learn terms and observe things which are different, similar, etc. There were many center-made games."

"Play school toys, creative playthings, construction paper -- mostly things that the children and I made up ourselves. Most of the things were thought up by the children."

Games and activities listed:

Matching games

Sensitivity games

Gymnastics

Making books

Arts and crafts (mosaics, painting, play-doh modeling, making cards, drawing, coloring, collages)

Sorting and building with blocks

Using connecting dots and tracing to practice writing

Puzzles

Observation games

Games and activities listed (Cont.):

Counting games

Phonetically singing the alphabet

Talking

Concentration card games

Word games

Name games

Appendix C

Reading Lesson 26

Instructions

In this lesson your child will meet the letter P. He will also review the-at family and some of the sight words he has learned. To help him with the P sound, the lesson includes some tongue-twisters. They will be easier to hear on the tape if you will say them a little more slowly than you normally speak. Try to stress the P sounds wherever they are underlined.

Materials You Will Need

Crayons
Magic Marker
7 worksheets

Taping

Today we're going to have some fun with a new letter. It's called the letter P. Find worksheet number 1 and you'll see what the letter P looks like. BEEP Did you every hear a motorcycle start? It goes putt, putt, putt, putt, putt very fast. Listen to the beginning of the motorcycle sound - puh, puh, puh. That's what sound the letter P makes. Can you make that sound with me? Puh, Puh, Puh. Now let's hear you say it three times by yourself, nice and loud. BEEP Very good, (child's name). Whenever you see the letter P in a word, you will know it always says puh. Now take your magic marker. Connect the dots to finish the capital P and the lower-case P you see on your first worksheet. BEEP

Lots of words start with P. Listen to this tongue-twister and you'll hear plenty of P sounds. (Slowly) Peter Piper picked a peck of pickled peppers. Here's one I bet you never heard: Polly popped a peanut into Patsy's pocket. Now here's one for you to say. Listen carefully. (Slowly) Poor Pete's popsicle plopped in a puddle. I'll say it again. Listen to all those P sounds and then you try it. Poor Pete's popsicle plopped in a puddle. Now you say it. BEEP Was that fun? Can you say it again, a little faster this time? BEEP Very good, (child's name) Did you hear all those puh-sounds the letter P makes?

Now I have another one for you to try. Listen to all the P-sounds in this. (Slowly) Penny put polliwogs into purple pails. Do you know what polliwogs are? Listen again, and I'll tell you. Penny put polliwogs into purple pails. Polliwogs are baby frogs who haven't lost their tails. Would you like to try saying that one? I'll say it one more time: Penny put polliwogs into purple pails. Now you try it. BEEP

Now here's the last tongue-twister. It's a silly one, too. Listen hard for all the P-sounds. (Slowly)

Pity poor Patrick, playing with paste,
Plot! It dropped on pumpkin pie. Ugh! What a taste!

At the end of your lesson there are some pictures for you to color of Peter Piper and Penny's Polliwogs. I hope you like them.

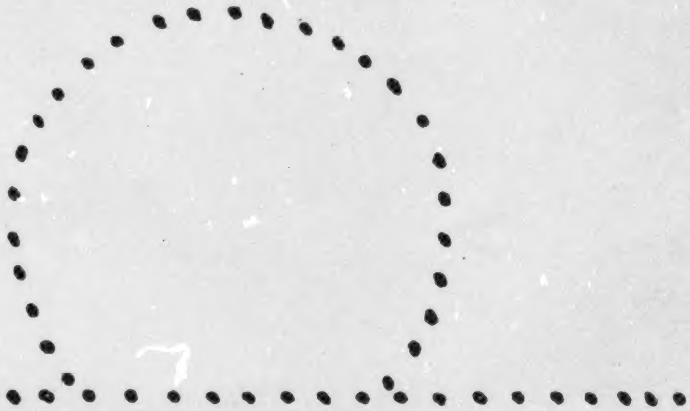
Now find worksheet number two. BEEP Pow! That's a popcorn gun, shooting out popcorn. Do you see the letters in the popcorn? (pause).. Some pieces have letter P's in them, capital and lower-case lett[illegible] And some pieces have letter B's in them. Sometimes B's and P's are [illegible]o tell apart, so you'll have to look very carefully at the letters in the popcorn. Color all the letter P-pieces of popcorn purple. But careful now! Don't color any of the letter B's. Color only the pieces with the letter P's in them purple. BEEP My, what piles of purple popcorn! Now get out your worksheet number three. BEEP

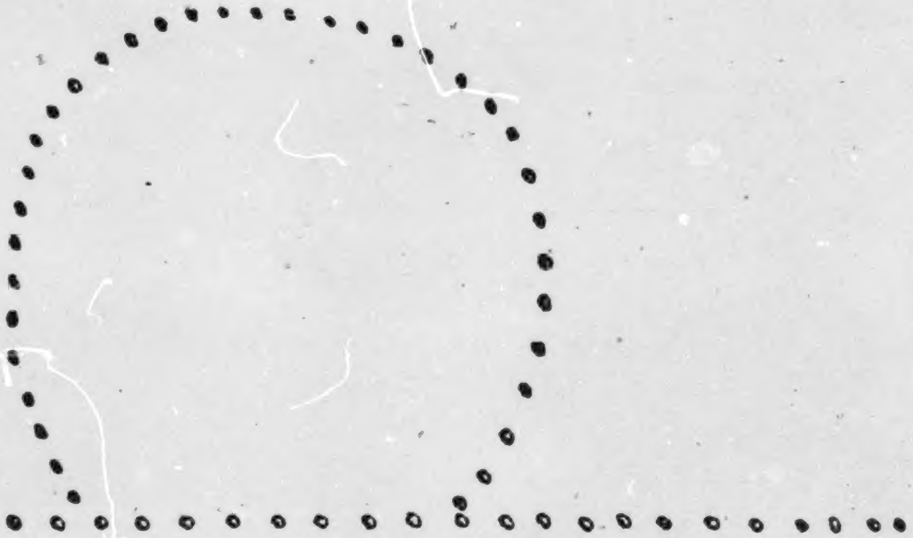
Look! It's the at-family! Do you remember them? They all have at on their shirts and they're holding balloons to tell who they are. Read the first at-child's name for me - the one that begins with C. What does she say? BEEP Did you say cat? Very good. Now the next at-child. What word does he say? BEEP If you said bat, that was correct. What does the next at-child say? BEEP He says fat. Very good. Now tell me what the next at-child says. BEEP Did you say sat? Good for you, (child's name) And now the last at-child. What word does he say? BEEP If you said mat, you were right again. Now there's a new at-child I'd like you to meet. There she is, sitting right in the middle of the page. Can you guess what her name is? Write the letter P on the balloon she's holding. BEEP Now do you know what her name is? BEEP If you said Pat, that was 100% correct! Good for you, (child's name). Give yourself a big star at the top of the page. BEEP

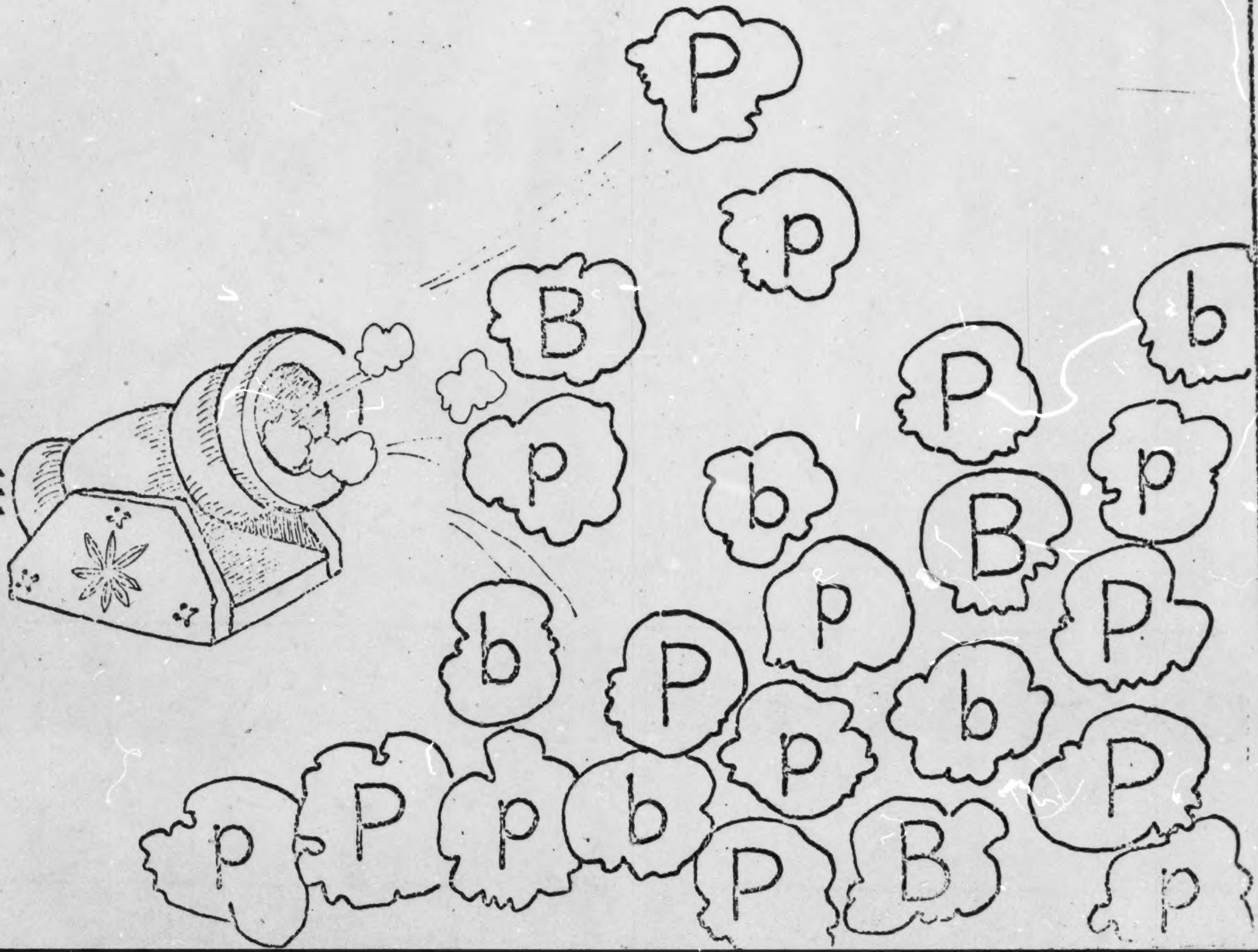
And now find worksheet number four. BEEP Here are pictures of six of Pat's things. They all begin with the letter P. Can you name them for me? What do you see in box one that begins with the letter P? BEEP Did you say a purse? Some people call it a pocketbook. If you said a purse or a pocketbook, you were correct. What's in box two that begins with the sound puh that the letter P makes? BEEP A pillow, of course! And what P-word do you see in box three? BEEP A pear. That's correct. How about box four? What do you see that begins with P? BEEP A pencil, right again! Now look in box five. There's something else that begins with the sound puh. What is it? BEEP A pie. Correct. Do you think it's a pumpkin pie or a peach pie or a pecan pie? Now look at box six. There's something else that begins with P. Can you name it? BEEP A *p*an or a *p*ot. Very good. Now go back and write the letter P on everything that starts with the sound *puh* that the letter P makes. BEEP Did you know that *all* Pat's things start with the letter P? If you put a letter P in every box, give yourself another big star at the top of the page. BEEP

Now find page five. BEEP Here's Pat again. She wants to tell you about some of her favorite things. Look at box one. Can you read what Pat is saying? BEEP Did you know Pat said, "I like my bed"? I hope so. Now look at the second box. Pat likes something else too, but you'll need to draw it for her. Can you read what she is saying? BEEP Pat is saying, "I like my house". Did you get that right? Good for you, (child's name). Draw a picture of Pat's house next to Pat. BEEP Now find box three and read what Pat is saying. BEEP Did you say, "I like my brother"? Good for you! Then draw a picture of Pat's brother beside Pat. BEEP Now look at the last box - box four. What is Pat saying here? BEEP Did you say, "I like my hat?" Very good, (child's name) Can you draw a picture of the hat Pat likes?

The last two worksheets are the coloring pages. I told you about them before. There are pictures of two of the tongue-twisters we said at the beginning of the lesson. Do you remember Peter Piper and Penny's polliwogs? Well, there they are for you to color if you want to. BEEP



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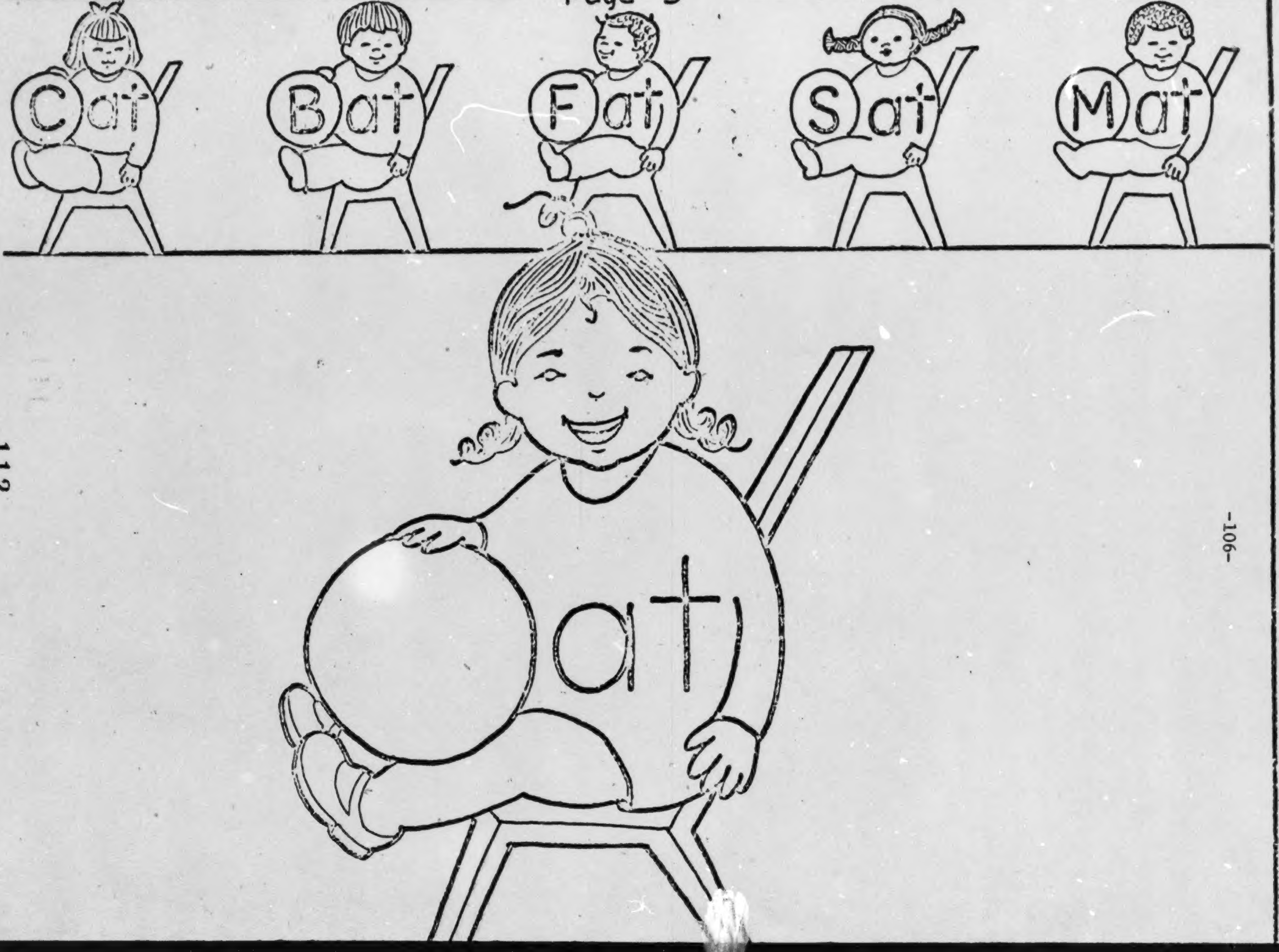
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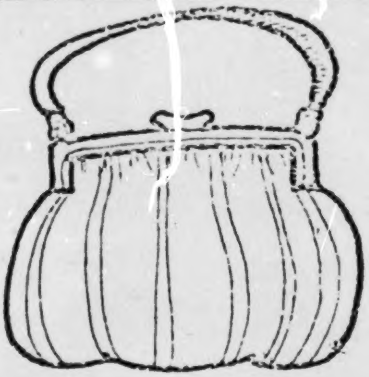

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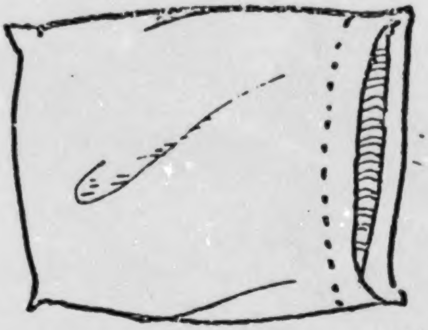

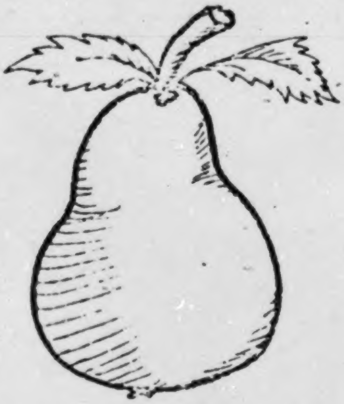

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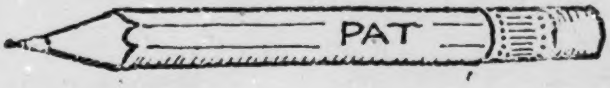

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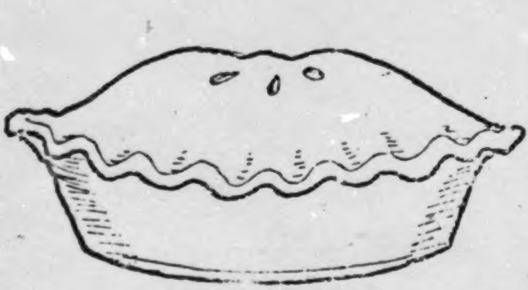

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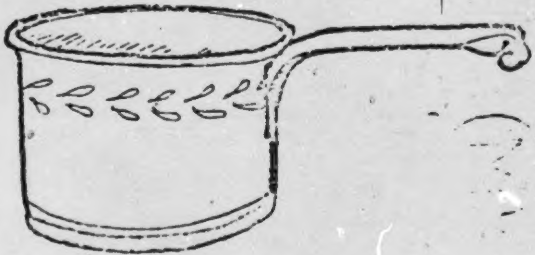

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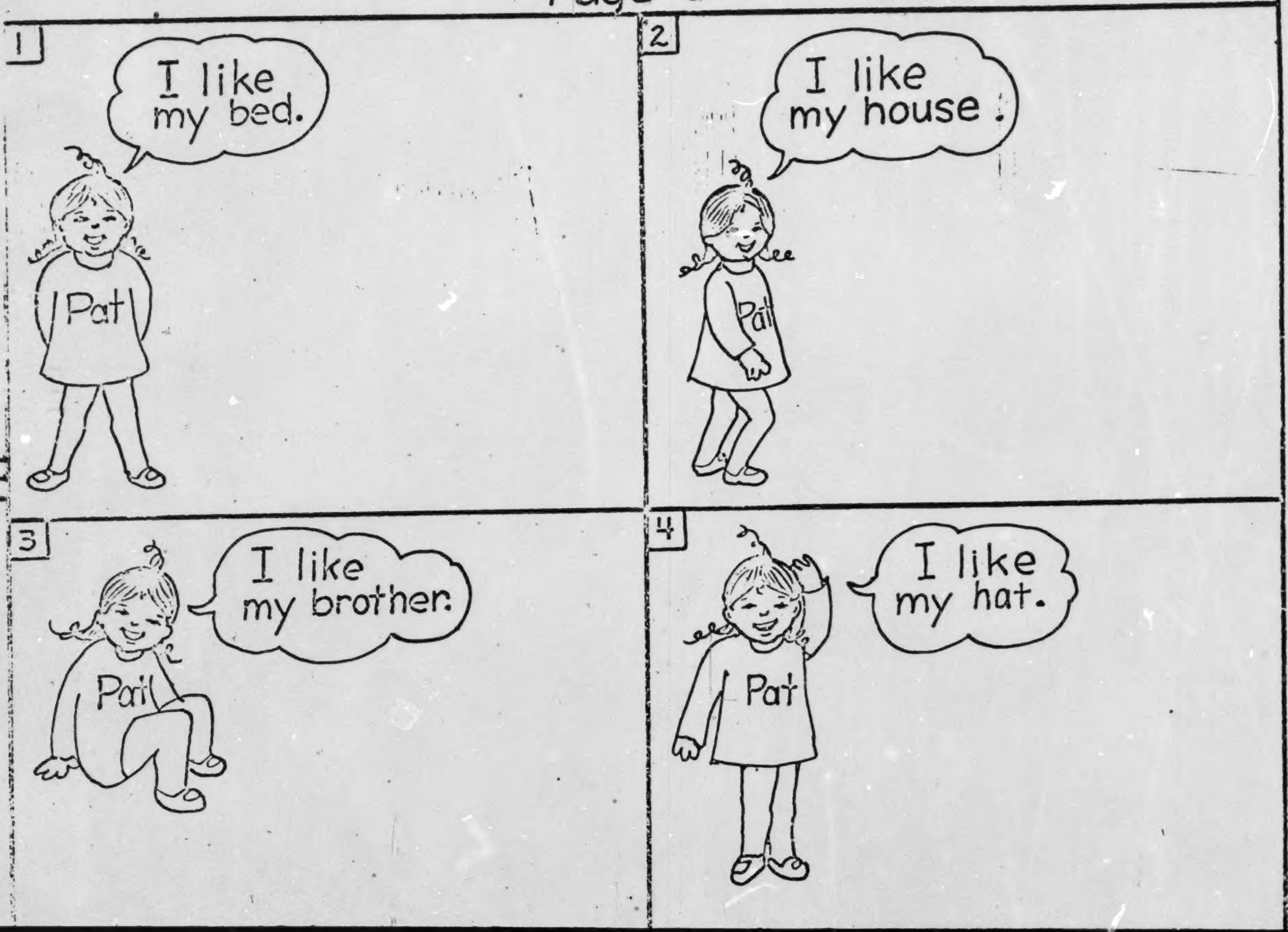
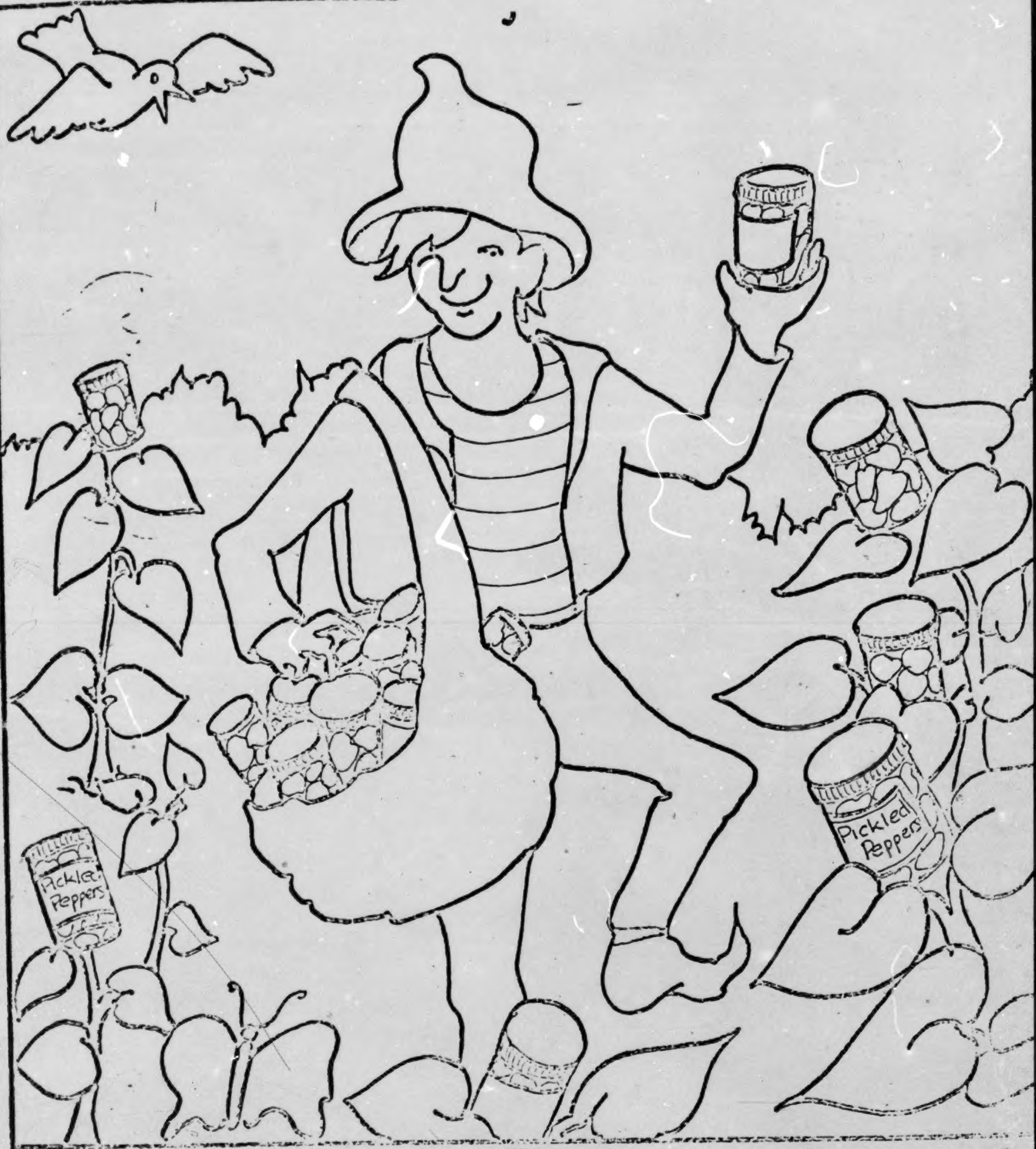
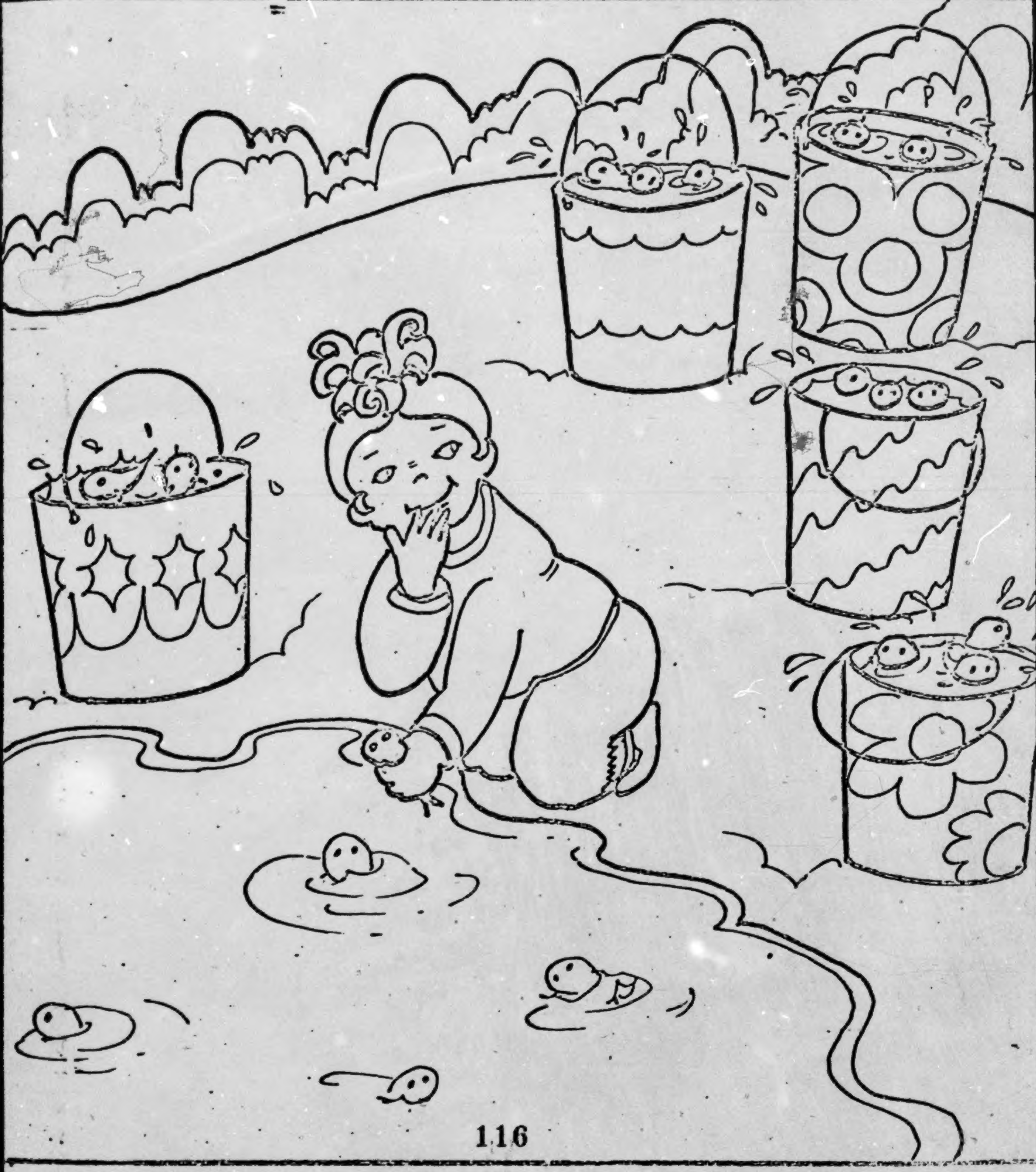

1
I like my bed.
Pat
2
I like my house.
Pat
3
I like my brother.
Pat
4
I like my hat.
Pat



Pickled Peppers
Pickled Peppers

Peter Piper Picked a Peck of Pickled Peppers.

Penny Piled Polliwogs into Purple Pails!



Appendix D

Frequency of Appearance of Various Concepts or Skills in the NAM Lessons

SKILL OR CONTENT AREA	NUMBER OF LESSONS	
	Primary Emphasis	Secondary Emphasis
CONCEPTS		
Left	11	7
Right	6	4
Last	5	2
Top	4	8
Long	4	1
Short	4	1
Next	4	1
Bottom	3	4
Under	3	3
Above	3	-
Below	3	-
Middle	2	5
Big	2	3
Little, Round, Up, Down, Corner, Over Front, Next to, Same	2 or fewer	2 or fewer
COLORS		
Red	15	25
Green	14	26
Yellow	15	19
Blue	8	21
Orange	7	13
Purple	6	15
Brown	5	8
Black	5	6

Appendix D (continued)

SHAPES	Primary Emphasis	Secondary Emphasis
Circle	9	5
Triangle	7	2
Square	5	3
Rectangle	4	-
NUMERALS		
1	21	4
2	21	4
3	19	4
4	17	4
5	14	4
6	11	4
7	9	3
8	6	3
9	4	2
10	1	1
ORDINAL NUMBER CONCEPTS		
First	6	-
Second	4	-
Third	4	1
Fourth	4	-
Fifth	3	-
Sixth	-	1

Appendix D (Continued)

SIGHT WORDS	Primary Emphasis	Secondary Emphasis
Boat	13	9
Train	10	5
Bus	9	6
Like	9	6
Mother	8	2
Father	7	1
Bike	6	7
Brother	6	3
Sister	6	1
Cat	5	9
I	5	8
You	5	2
My	4	8
Car	4	6
Yellow	3	6
See	3	5
Is	3	5
Go	3	4
Mouse	3	4
Red	3	7
Blue	3	8
Be	3	1
This	3	1
No	3	2
Rain	3	-
Bat	3	2
What	3	2
Bit	3	1
Green	2	9
House	2	7

Appendix D (Continued)

SIGHT WORDS (Cont.)	Primary Emphasis	Secondary Emphasis
Fox	2	4
That	2	3
Bed	1	6
To	1	5
The	1	4
Hat	1	9
Man	1	8
Can	1	6
Not	1	5
102 Other Words	fewer than 3	fewer than 3

LETTERS (recognition or identification)	Primary Emphasis	Secondary Emphasis
B	21	7
b	5	3
S	17	5
s	5	2
M	13	5
m	2	2
F	11	3
f	4	1
T	11	1
t	2	1
P	8	2
p	1	-
C	7	3
c	1	-
H	7	3
h	1	-
N	7	1
n	1	1

Appendix D (Continued)

LETTERS (Cont.)	Primary Emphasis	Secondary Emphasis
I	7	-
i	3	1
E	6	-
e	3	2
A	6	1
a	3	1
D	5	-
d	2	-
Y	4	1
G	4	1
R	4	-
W	4	-
X	3	-
Z	3	-
O	3	1
o	2	-
U	3	1
u	2	-
L	3	-
l	1	-
J	3	-
K	3	-
V	2	-
v	1	-
Q	1	-
K	-	1

Appendix D (Continued)

LETTER SOUNDS	Primary Emphasis	Secondary Emphasis
B	15	5
S	15	2
M	15	2
F	12	2
C (hard)	6	-
T	5	-
P	5	-
D	4	1
th	4	-
H	3	2
N	3	1
R	3	1
A (long)	3	-
I (short)	3	-
G (hard)	2	2
W	2	1
A (short)	2	-
E (short)	2	-
L	1	2
J	1	1
O (long)	1	-
U (long)	1	-

Appendix D (Continued)

WORD FAMILIES	Primary Emphasis	Secondary Emphasis
- at	9	1
- an	7	-
- am	3	-
- and	1	-
- all	1	-
- ay	1	-
- et	1	1